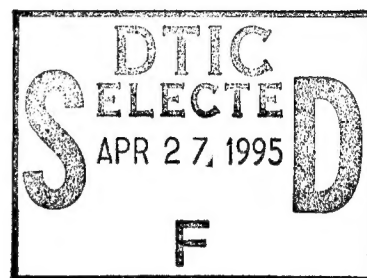


NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

AN ANALYSIS OF THE NAVY'S GRADUATE
EDUCATION PROGRAM AND FOLLOW-ON
UTILIZATION OF OFFICERS BY
DESIGNATOR AND SUBSPECIALTY

by

Terri Ekelund Brutzman

December 1994

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PROGRAM AND FOLLOW-ON UTILIZATION OF OFFICERS
BY DESIGNATOR AND SUBSPECIALTY**

by

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Lieutenant Commander, United States Navy
B.S., St. Mary's College of Maryland, 1978

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN MANAGMENT

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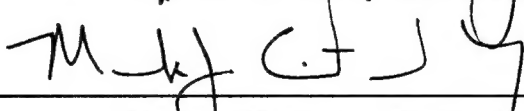
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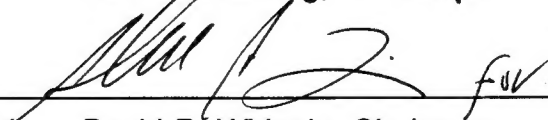
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ABSTRACT

This study analyzes the utilization and retention of Naval officers who have received Navy funding for their graduate education. Two databases are used to analyze utilization and retention: the 1993 officer master file and a cohort file of officers who were commissioned in 1980. The 1993 officer master file looks at utilization first by all subspecialties together, second by gender, and finally by designator. The cohort file is used to analyze both utilization and retention.

The results indicate that, overall, the Navy receives a relatively good return on its investment. Specifically, the Restricted Line and Staff Corps officer communities have the best utilization rates. The study reveals that Unrestricted Line officers tend to have relatively lower utilization rates than officers in other communities. The cohort data indicate that fully-funded graduate education subspecialists generally have a higher retention rate than their counterparts without fully-funded graduate education.

Recommendations for future work are included.

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I. INTRODUCTION

The purpose of this thesis is to analyze Navy subspecialties that are staffed with officers who have received fully-funded graduate education (FFGE). The analysis focuses on the Navy's return on its investment in graduate education by looking at the utilization of officers with graduate education and their leave rates and retention rates. The officer communities analyzed have been limited to the following: Unrestricted Line officers (URL), Restricted Line officers (RL), and adjusted Staff Corps officers¹ with graduate degrees in subspecialties provided by the Naval Postgraduate School (NPS) and the Navy's Civilian Institutions (CIVINS) program.

In the present era of defense downsizing, the Navy's fully-funded graduate education programs have become a target of interest. One important question is: assuming that graduate education is needed within the Department of Defense (DoD) and the Navy, are products of the Navy's graduate education program being fully utilized? The Navy's investment in its officers includes both the direct

¹The adjusted Staff Corps consists of non-medical graduate-educated officers, which includes some of the Medical Service Corps, some Nurse Corps, the Chaplain Corps, the Civil Engineer Corps, and all Supply Corps officers. Officers who obtained graduate education through other graduate education programs have been dropped from consideration in the statistical analyses.

being fully utilized? The Navy's investment in its officers includes both the direct and indirect economic cost of providing graduate education. To make the investment worthwhile to the Navy, the economic benefit that is obtained should at least cover the economic cost of the graduate education. The cost of the Navy's investment includes the full salary of the officer, the direct cost of the education (for example, operation of the Naval Postgraduate School), and any additional opportunity costs such as the officer being unavailable for assignment to an operational billet during the period of education. To ensure that some return on the investment is received, DoD requires that graduate-educated officers serve in a "payback" tour. The payback tour must be in a billet related to the subject area of the graduate education, and it must be accomplished within two tours of obtaining the degree [Ref. 1:p. 3]. The Navy's term for this is "utilization." Both the timing and rate of utilization are examined in this thesis. Life-cycle productivity profiles are examined by computing the leave rates and retention rates of officers with and without graduate-education. Two officer databases are constructed to facilitate the statistical analysis of utilization.

First, an extract of the 1993 Officer Master File, a cross-sectional database, is used to evaluate the current inventory of graduate education-based subspecialists from Lieutenant (O-3) to Admiral (O-9), and to compare officers who have graduate education with those who do not. Second, a longitudinal cohort file, which tracks all officers who entered the Navy in 1980 through 1993, is used to

analyze the life cycle productivity profile of officers with graduate education and to compare these profiles with those of officers without graduate education.

The statistical analysis in the thesis is performed on the majority of the officer corps: URL officers, RL officers, and adjusted Staff Corps officers. These officers are partitioned into the following groups: (1) those who receive FFGE (at the Naval Postgraduate School or through the Civilians institution program); (2) those who receive graduate education from other than fully-funded programs; and (3) those who do not have any graduate education. This partitioning permits statistical comparisons of officers with and without graduate education and an analysis of the different management practices concerning the distribution of officers and subspecialty utilization by community.

Chapter II provides the background and literature review of the Navy's subspecialty system, human capital investment theory, and current Navy and DoD policies regulating the Navy's graduate education programs. Chapter III describes the study methodology and the two databases noted above. Chapter IV presents the data analysis. This is followed by the conclusions and recommendations in Chapter V. Appendix A describes the subspecialty codes, by describing each element of the subspecialty code, and provides a list of the subspecialty codes used in the study. Appendix B identifies the data elements in the fiscal 1993 Officer Master File. Appendix C presents the subspecialty utilization matrix used by detailers in assigning officers to subspecialty billets. Appendix D identifies the data elements in the 1980 officer cohort file. Appendix E provides tables that list

Appendix E list subspecialists by gender and designator. Appendix F provides frequency data for the 1980 Cohort file.

II. BACKGROUND AND LITERATURE REVIEW

This chapter provides a brief history of the Navy's graduate education program and a description of the Navy's subspecialty system. It also reviews human capital investment theory as it applies to this study.

A. HISTORY

This section on the history of graduate education within the Navy was condensed from Rilling [Ref. 2]. Postgraduate education has existed within the Navy since the early 1900s. Over the years, postgraduate programs in the Navy have struggled to find an appropriate mission, location, and funding source. Originally, the Navy's postgraduate education was centered around engineering, which eventually grew to include Marine Engineering, Electrical Engineering, Radio Telegraphy, Ordnance and Gunnery, Naval Construction, and Civil Engineering. Over time, the postgraduate programs expanded to cover non-technical disciplines aimed at making engineers better able to express themselves.

Originally, the postgraduate program was a part of the Naval Academy. However, this was a source of continual conflict due to competition for resources between the undergraduate portion of the school and the postgraduate department. In 1947, Public Law 302 authorized the Navy to purchase land in

Monterey, California and to establish the Naval Postgraduate School, which would be independent from the Naval Academy. The move to Monterey was finalized in 1951. For a number of years, the Naval Postgraduate School was a subordinate command of the Chief, Naval Education and Training Center. In 1983, the Naval Postgraduate School was realigned under the Chief of Naval Operations as a second-echelon command, on the same level as the Naval Academy and the Naval War College. Over the years, the Naval Postgraduate School has grown from a few engineering-oriented curricula, which were developed to support the specific needs of the Navy, to a broad spectrum of curricula both technically and non-technically-oriented. Some of these curricula are also offered at Navy-approved civilian educational institutions numbering 64 nationwide.

As the size of the postgraduate program increased, along with the cost to the Navy, Congress imposed a requirement on all DoD organizations to ensure that officers participating in fully-funded graduate education programs provide a "payback" tour as compensation for the cost of their graduate education. The Navy's subspecialty system was created to manage the growing numbers of officers participating in postgraduate programs and to distinguish between the various degrees being granted.

B. THE NAVY'S SUBSPECIALTY SYSTEM

The officer subspecialty information presented here was compiled primarily from two sources [Refs. 3 and 4]. Appendix A provides a list of relevant subspecialty codes and a definition of each position of the five-characters contained in the subspecialty code, as well as each subspecialty code. The subspecialty code is grouped into three sections: the first two numeric characters, the third and fourth numeric characters, and the fifth, which is an alpha character. The appendix first identifies each position and what it represents for the subspecialty code. Next, the subspecialty codes relevant to this study are described. The first two characters represent the functional area of study, the third and fourth characters represent the education/training/experience fields, and the fifth character represents the educational or experience level attained by the officer.

As described in the Officer Subspecialty System Handbook, "the Navy's officer subspecialty system was developed as a means to define the graduate education requirements for the Navy" [Ref. 3:p. 1]. The subspecialty system is the method of determining the Navy's subspecialty needs. The system can be organized into five parts: billet requirements, curricula content, annual quotas, inventory, and utilization. These areas are discussed below.

1. Billet Requirements

There are two aspects to be considered in determining billet requirements. The first involves the establishment of new subspecialty

requirements. The second deals with revalidation of existing subspecialty billet requirements. For the purpose of this thesis, the subspecialties being discussed and analyzed are those requiring graduate education. Once the subspecialty requirements have been established and the subspecialty designation is approved, the new subspecialty becomes part of the system, thereby determining the number of student billets and the nature of the graduate curricula. The requirements for the graduate education subspecialty must be validated at least every other year (biennially), as mandated by DoD Directive 1322.10. Between 1975 and 1991, the method for accomplishing validation was through the Subspecialty Requirements Board (SRB). A new system was developed following the 1991 SRB. It was thought that under the old process many of the requirements were being "rubber stamped." To allow for a more comprehensive review and validation of subspecialties, the new system provides a continuous schedule of subspecialty reviews. Table 1 presents the list of participants in the SRB process and describes their roles. The following is a description of the management levels and their responsibilities.

Commands and Sub Activities are the first link in the chain that determines the subspecialty needs of the Navy. Their requirements are defined by submitting a Subspecialty Requirements Request. The Major Manpower Claimants (MMCs) are the point of contact who determine and use the forces generated. The Designator Advisor (DAs) are the subspecialty experts who advise on career paths, inventory, and future requirements of their designator. Finally, the Primary Consultants (PCs), are the single point of contact on technical matters for a specific subspecialty. The Officer Subspecialty Management and Graduate Education Section (PERS-213D) within the Bureau of Naval Personnel coordinates the subspecialty management functions handled by these individuals. [Ref. 3:p. 3]

Anyone, starting as low in the chain of command as the command level, can create a new subspecialty or make a change to an existing subspecialty. For example, suppose the Commander of a Computer Facility under the Commander in Chief, Pacific Fleet (CINCPACFLT) determines a need to change Computer Systems Management (CSM) to Information Technology Management (ITM), thereby including more education in the communications area. The command does the background, identifies the needs and the billets, and specifies the general curricula changes. With this information, a Subspecialty Requirements Request is submitted. The request follows the normal chain of command to the MMC level, which in this case would be CINCPACFLT. Once the MMC validates the requirements at their level, the subspecialty request is submitted to both the DA and the PC. In this case, several DAs would be represented because ITM billets include many of the designators. The PC would be the technical expert for ITM issues, the Commander, Space and Electronic Warfare Command. The PC would review the Subspecialty Requirements Request for technical accuracy and relevance. And, finally, PERS-213, the Officer Subspecialty Management and Graduate Education Section, acts as the coordinator, tracking the progress of the Subspecialty Requirements Request until completion.

The organizational elements described above are a part of the subspecialty system. However, only the PCs, DAs, and PERS-213 participate directly in the biennial review of the subspecialties. The former SRB is now

referred to as the Subspecialty Requirements Review (SRR). The process involves the same participants as the SRB. The difference between the SRB and the SRR is the schedule: instead of being held as a single meeting biennially for review of all subspecialties, each subspecialty is scheduled separately for review under the SSR. The idea is to allow for a more in-depth review. The same requirement for the biennial review is still accomplished. The new process works in the following manner: the MMCs submit requests for subspecialty requirements to PERS-213D according to the schedule. (The schedule is contained in the Officer Subspecialty System Handbook. [Ref. 3:pp. 36-41]) PERS-213D provides a quality check for required information and billet validation; the request is then sent to the PCs and DAs for review; finally a working group, consisting of the PCs, DAs, and a representative from PERS-213, is convened to conduct the review. The purpose of the working group is to ensure that the requirement represents a valid utilization of a subspecialist and a justified utilization of the designator in the requested billet.

Table 1 provides a more detailed description of the management levels and their responsibilities in the SRR process. Each subspecialty has a PC, usually an organization headed by an Admiral. This organization is responsible for the technical area under which the subspecialty falls. For example, the Chief of Naval Personnel is the sponsor, with PERS-2 acting as the PC, for the Manpower, Personnel, and Training Analysis (MPTA) subspecialty code. At the other end of the spectrum is the subspecialty billet at the command level. To

review and validate the subspecialty billets, several organizational elements have been identified and assigned responsibilities associated with reviewing and validating the need for a particular subspecialty billet. Table 1 provides a description of each organizational element and its responsibilities associated with reviewing subspecialty needs.

TABLE 1. RESPONSIBILITIES FOR MANAGEMENT OF THE SUBSPECIALTY SYSTEM

ORGANIZATIONAL ELEMENT	DESCRIPTION OF RESPONSIBILITIES
Commanders, Commanding Officers	Originate Subspecialty Requirements Requests; expressing minimum requirements necessary to support the mission, functions and tasks of the command and submit to Major Manpower Claimant (MMC).
	Identify to the MMC, all subspecialty requirements in excess.
Biennial Subspecialty Requirements Review (SRR)	Validate all subspecialty requirements and approve authorizations.
Major Manpower Claimant (MMC)	Review all Subspecialty Requirements Requests originating within the assigned claimancy for changes to activity Manpower Authorizations.
	Ensure Subspecialty Requirements Requests meet the requirements stipulated in subspecialty billet criteria statements.
	Identify for deletion all nonessential subspecialty authorizations.
	Maintain a complete file of approved Subspecialty Requirements Requests originated within claimancy.
	Maintain a current file of subspecialty Specific Criteria Statements.
	Seek assistance as necessary from CNP (PERS-213D1) in all matters concerning the subspecialty system.

TABLE 1 (CONTINUED)

ORGANIZATIONAL ELEMENT	DESCRIPTION OF RESPONSIBILITIES
Designator Advisor (DA) and their Representative	Review Fact Sheets to ensure designators are reflected properly.
	Review Subspecialty Requirements Request form to ensure subspecialty codes and designator are compatible.
	Liaison with subspecialty Primary Consultants to present differing views as well as rendering advice.
	Ensure Subspecialty Requirements Requests express the requirements stipulated in the general and specific criteria statements; requirement represents a justified utilization of the designator on the requested billet.
	Recommend approval or disapproval of subspecialty requests to CNP (PERS-213D1)
Primary Consultant (PC) and their Representative	Serve as the central point of contact for the assigned subspecialty skill field.
	Originate and maintain Subspecialty Specific Criteria Statements.
	Originate and maintain subspecialty Fact Sheets.
	Review Subspecialty Requirements requests to determine whether the requirements expressed represents a valid utilization of the subspecialty.
	Ensure Subspecialty Requirements Requests meet the requirements stipulated in Subspecialty Billet Criteria Statements.
	Shape graduate education billet authorizations into a pyramid structure; look for education authorizations inconsistent with career pattern; i.e., too much education at too low a grade, limited utility in following career assignments.
	Assure that like billets are coded alike.
	Seek opportunities to use less than masters level of education.

TABLE 1 (CONTINUED)

ORGANIZATIONAL ELEMENT	DESCRIPTION OF RESPONSIBILITIES
PC (continued)	Recommend approval or disapproval of subspecialty requests to CNP (PERS-213D1)
Subspecialty Requirements Coordinator	Develop policy for officer subspecialty management.
	Manage and coordinate subspecialty manpower authorizations; maintain liaison with Primary Consultants and Designator Advisors in validating requirements.
	Approve requirements and monitor subspecialty authorizations to minimize education and maximize utilization.
	Convene biennially the Subspecialty Requirements Review to review the total graduate education criteria and billet requirements.
Director of Naval Training (N-7)	Direct and approve curriculum reviews for each subspecialty at least biennially, to ensure curriculum meet established Education Skill Requirements (ESR). Approved curriculum will be forwarded to PERS-213 to ensure implementation of subspecialty in TFMMS.
	Approve curriculum development to meet subspecialty requirements and the education institutions authorized to present the curricula.

Source: [Ref. 3:pp. 13-15]

2. Curricula

There are currently 78 curricula offered to the Unrestricted Line, Restricted Line, and Staff Corps. These curricula are offered at the Naval Postgraduate School and at the various civilian institutions. The following describes the responsibilities for curricula reviews.

OPNAVINST 1520.23 series directs the Superintendent, Naval Postgraduate School and the PCs to jointly conduct biennial graduate education curriculum reviews for the purpose of ensuring that course content and structure remain consistent with sponsor needs and subspecialty authorizations. Biennial reviews are also required for programs at civilian institutions where no similar curricula are taught at Naval Postgraduate School. [Ref. 3:p. 45]

Although this process is formally held biennially, in practice there exists an ongoing liaison between the PCs and the various curricular officers at the Naval Postgraduate School concerning annual quota fills, curriculum start dates, sponsor-generated thesis topics, and other areas of interest regarding curricula.

3. Annual Quotas

Each year an informal Quota Planning Conference is held to determine the student quotas for the following year. Quotas are distributed by subspecialty and designator. There are three participants involved in the Quota Planning Conference. These include PERS-213, PERS-440 (Student Placement officer), and the Naval Postgraduate School.

PERS-213 maintains the quota model, which was developed in 1975 by Professor Kneale Marshall of the Naval Postgraduate School [Ref. 5]. This model is used to determine and control, by prediction, short-and long-range graduate education requirements. The Navy, by use of the model, has developed a mathematical approximation of long-term inventory-to-billet ratios. These approximations include the designators and paygrades of officers as well as the differing career patterns between officer communities that affect the availability of officers for postgraduate utilization tours.

PERS-213 reviewed, in 1994, a new version of the quota model that would allow for more adaptability. In the old model, it was difficult for a staff member unfamiliar with computers to conduct "what if" drills. The input file for the billets came directly from a mainframe computer. With the new model, the staff member can adjust the model by changing billet input numbers. (Recall, it is the subspecialty-coded billets that drive the number of officers needed to be educated for the future Navy.) This adaptability is expected to make it easier to analyze policy changes and do forecasting.

The Quota Planning Conference is an informal meeting between three organizations, PERS-213, PERS-440, and the Naval Postgraduate School. The quota model is used to provide the skeleton of projected quotas by subspecialty and designator. Prior to the conference, PERS-213 generates the numbers using the quota model. PERS-213 does a cursory quality check and provides PERS-440 and the Naval Postgraduate School with the projected numbers. Each participant reviews the numbers from its own perspective. At the conference, the three participants work out the next year's official Quota Plan. The final plan must be approved by the Chief of Naval Personnel, N-1.

4. Graduate Education Subspecialty Inventory

The Quota Plan provides the targeted number of subspecialists to meet the graduate education subspecialty needs of the Navy. Successfully meeting the annual quotas will build the graduate education subspecialty officer inventory needed for the future Navy.

5. Utilization

"Utilization" is the Navy's term for compliance with the DoD requirement that an officer be assigned to a billet that utilizes the education the officer received within two tours of receiving the education. The Navy's subspecialty system is comprehensive and designed toward minimizing resources. The term "minimizing resources" in this context refers to the review process that strives to reduce the number of graduate education-based subspecialty requirements whenever possible, using experience-based subspecialists instead. However, the review process was also designed to ensure that valid subspecialty billets are retained. The billets, in turn, drive the number of officers needed to be educated to build the appropriate inventory to fill the billets. Utilization is the primary means of monitoring the success of the subspecialty system. Utilization is also the primary means by which the employer, the Navy, receives a return on its investment in education. Human capital theory provides the theoretical framework for evaluating this process.

C. HUMAN CAPITAL INVESTMENT THEORY

Human capital investment theory has been described as follows:

The investment theory, as originally applied to the purchase of real capital in the form of plants, equipment, and machinery assumes investment projects will be undertaken if the original purchase price and ensuing maintenance costs will be recovered with an acceptable rate of return in the form of greater productivity and output over the useful life of the investment project. Investment, itself, is the net change in the capital stock where additions to the stock are made through new investments and reductions in the stock result from depreciation and obsolescence.

This theory includes changes in the stock of labor embodied in workers, or "human capital" as distinguished from "non-human capital" investments. Additions to the stock of human capital can be made by acquiring higher levels of education, new trades or skills, or simply by acquiring greater work experience through "learning-by-doing." [Ref. 6:p. 3]

A firm that invests in human capital may provide its employees with two types of training, called "general" and "specific." General training provides the individual with skills that could be used at other firms. An example of general training would be teaching a secretary a word processing software program. This skill could be utilized in many types of jobs. Specific training is learning a skill that applies only to one firm. An example of specific training, which is unique to the firm, is Damage Control training for Surface Warfare officers. This skill would be unique to the Navy.

The difference between the two types of training is in who pays for the training. Because general training is easily transferred to another firm, the firm has no incentive to pay for this type of training. If the firm provides general training then the individual pays for the training through lower wages so the firm can recoup the cost of the training. Specific training is paid for by both the individual and the firm. The firm will pay the individual a wage equal to its competitors during the training period because specific training does not provide the individual with skills that would be marketable at another firm. However, after the training period the firm will be compelled to increase the wage to reduce the incentive for the individual to quit. [Ref. 7:pp. 160-161]

The postgraduate education the Navy provides has elements of both general and specific training. Some aspects of the Navy's education is general in nature, such as courses in computer science, general management, applied math, physics, and operations analysis. However, even aspects of these curricula are considered specific because the focus within the curricula is on military applicability. Several of the curricula the Navy provides are categorized as specific training. These include: national security affairs, aeronautical engineering, undersea warfare, and electronic warfare. These curricula primarily focus on military relevance and would be of little benefit to anyone other than the military or a firm working in a military related area.

The Navy has an advantage over a civilian firm, in that the Navy can require individuals to obligate service time in return for training or education. In this case the Navy requires that officers receiving fully-funded support remain in the service four years following their graduate education. This is one way the Navy guarantees a return on its investment. The second method is by utilizing FFGE officers in subspecialty-coded billets.

The compensation aspect of human capital investment theory is the focus of this thesis. The Navy, in part, receives compensation through the "payback" tours served by each officer who participates in a fully-funded graduate education program. The study provides a statistical snapshot of the fiscal 1993 Officer Master File on compliance with the DoD requirement for utilization by each designator and subspecialty community. It further attempts to compare the

separation and retention rates of officers who have received graduate education with officers who have not. The following chapter provides a description of the assumptions and methodology used to establish the two databases employed in the analysis.

III. METHODOLOGY

This chapter describes the two databases used in the study and discusses the criteria and assumptions used to build each database. One of the data files is based on a cross-sectional extract of the fiscal 1993 Officer Master File (OMF). The second is a longitudinal database of officers commissioned in 1980, constructed with extracts of the OMF for each year from 1981 through 1993. The following sections provide a detailed description of each database.

A. CROSS-SECTIONAL DATABASE (FISCAL 1993 OMF)

The original extract of the fiscal 1993 Officer Master File (or FY93 OMF) came from the Chief of Naval Personnel Staff (PERS-10). The Naval Postgraduate School (NPS) is on the distribution for an annual update of an extract of the OMF. Permission to use the FY93 OMF extract was obtained from the Naval Postgraduate School, Code 06. The data elements included in the extract were selected based on their relevance for an analysis of graduate education subspecialty utilization. Appendix B provides a list of database elements and a description of each element.

The initial FY93 OMF file contained 91,471 officers. The file contained midshipmen, officer candidates, and some officers who are no longer on active duty. The first step in constructing the database was to limit the database to only

officers on active duty as of 30 September 1993. This was accomplished by matching active duty social security numbers with the social security numbers in the FY93 OMF. A new active duty FY93 OMF was created that contained 63,608 officers. This file included officers in all paygrades, from Chief Warrant Officer through Admiral.

The next step in shaping the database was to eliminate the Chief Warrant Officers and Limited Duty Officers, since these officers do not participate in the Navy's graduate education programs. In addition, Medical Corps officers, Dental Corps officers, and Judge Advocate General Corps officers were deleted along with the majority of officers in both the Medical Service Corps and Nurse Corps. These staff corps officers were eliminated because they primarily gain their education prior to commissioning or through the Navy's Medical graduate education programs. The remaining Medical Service Corps and Nurse Corps officers participate in a few of the NPS curricula and therefore were included in the database. The file used for the analysis in this study contained 39,745 officers. Three elements were used as the primary means of organizing the data. These include designators, subspecialty code, and utilization.

1. Designators

The designators used in this study were grouped into three categories: Unrestricted Line (URL), Restricted Line (RL), and Staff Corps. The designator is a four-position numeric field. Within the 1100 series of designators, the first three positions identify an officer by warfare specialty. For example, the

designator 111X identifies a Surface Warfare Officer and the designator 112X identifies a Submarine Warfare Officer. Designators from 1300 through 5100 can be broadly categorized by the first two fields in the designator. For the designators 13XX (aviation), the third position provides further description of the warfare specialty. For example, 130X is an Unrestricted Line officer, a member of the aeronautical organization who neither a pilot nor a flight officer. A 131X designator is an Unrestricted Line officer who is qualified for duty involving flying as a pilot. A 132X designator is an Unrestricted Line officer who is qualified for duty involving flying as a Naval Flight Officer or NFO. The 137X and 139X designators are for officers training to become an NFO and a Pilot, respectively. The fourth position is the same for all Naval officer designators and is used to distinguish between whether an officer is Regular Navy or a Naval Reserve officer. For example, a General Unrestricted Line officer in the Regular Navy has the designator 1100; an active duty Naval Reserve General Unrestricted Line officer is designated 1105; and an active duty Naval Reserve General Unrestricted Line officer in the Training and Administration of Reserves (TAR) program is designated 1107. [Ref. 8:pp. 105-111] The three categories of officer designators--Unrestricted Line Officers, Restricted Line Officers, and Staff Officers--are further described in Table 2.

TABLE 2. DESCRIPTION OF OFFICER DESIGNATORS

Designator	Officer Community
	UNRESTRICTED LINE (URL) OFFICERS
110X	General Unrestricted Line (Gen URL) Officers
111X	Surface Warfare Officers (SWO)
112X	Submarine Warfare Officers
113X	Special Warfare Officers
114X	Special Operations Officer
13XX	Aviator (as described on the previous page)
	RESTRICTED LINE (RL) OFFICERS
14XX	Qualified Ship Engineering Duty Officer and Trainees
15XX	Aerospace Engineering Duty Officer
	Aviation Maintenance Duty Officer
	Aviation Duty Officer
16XX	Special Duty Officer
	Cryptology
	Merchant Marine, Deck
	Naval Intelligence
	Public Information
	Merchant Marine, Deck and Engineering
	Merchant Marine, Engineering
	Merchant Marine, Communications
18XX	Special Duty Officer (Oceanography)

TABLE 2 (CONTINUED)

Designator	Officer Community
	STAFF CORPS
23XX	Medical Service Corps Officers
29XX	Nurse Corps Officers
31XX	Supply Corps Officers
41XX	Chaplain Corps Officers
51XX	Civil Engineer Corps Officers

Source: [Ref. 8:pp. 105-111]

2. Subspecialty Code

The subspecialty code identifies the subject area in which the officer has specialized. Appendix A provides a list of subspecialty codes and a description of each code. For this study, the subspecialty codes are grouped into three categories. Category 1 includes officers who obtained graduate education through a Navy-sponsored, FFGE program. Officers in Category 1 have a graduate education level code in which the fifth position of the subspecialty code is one of the following: P, Q, M, N, C, or D. Category 2 includes officers who have greater than a bachelor's degree in the subspecialty area but less than a master's degree, or a master's degree that does not fully meet the Navy's criteria for the subspecialty. Officers in this category of subspecialist are referred to as "OTHER." For the purpose of this study, the "OTHER" designation means

subspecialties that have been obtained outside of the Navy's fully-funded program, those holding an F or G suffix. Category 3 includes officers with similar characteristics, but without graduate education.

3. Utilization

The Navy has a data field in the OMF to identify the status of a graduate-education-based officer with respect to utilization, based on the DoD requirement. Table 3 provides a description of the code. Any officer earning a master's degree, post- master's degree, or Ph.D. through one of the Navy's FFGE programs must be reviewed and assigned a utilization code, as described in Table 3, each time the officer is detailed. The 1993 officer file contains 6,698 FFGE subspecialists; of these, 6,412 officers are coded with a utilization code, and 286 officers are missing a utilization code. The missing codes are assumed to be the result of administrative oversight.

TABLE 3. FFGE SUBSPECIALTY UTILIZATION CODES IN FY93 OMF

UTILIZATION	DOD TWO TOUR WINDOW	
	IN WINDOW	OUTSIDE WINDOW
NOT USED	X*	A
ONE TOUR	Z	B
MULTI TOUR	Y	C

* Note: Still within the two-tour window = must use subspecialty next tour to comply with DoD utilization criteria ("must use next").

The Navy has chosen to further define utilization of an officer's subspecialty. Appendix C describes the type of subspecialists (shown in the columns) who can fill a subspecialty billet (shown in the rows). There are two categories for identifying an officer's utilization. An officer who is detailed to a billet that is an exact match (for example, an officer holding a XX33P code who is detailed to a XX33P-coded billet) is referred to as a "Direct Fill." An officer detailed to a related subspecialty (identified by the matrix in Appendix C) is referred to as a "Related Fill." Both Direct Fill and Related Fill officers are counted as being utilized by the utilization code in Table 3. CNP (PERS-440E) is responsible for assigning this utilization code. In this study, DoD utilization statistics combine both Direct Fills and Related Fills [Ref. 9].

B. LONGITUDINAL DATABASE (1980 COHORT)

This 1980 Cohort database consists of all Naval officers commissioned in 1980. The database was further restricted to include only Unrestricted Line officers, Restricted Line officers, and selected Staff officers. Of the Staff Corps, Medical Corps officers, Dental Corps officers, and Judge Advocate General Corps officers were eliminated, as were Nurse Corps officers with medical graduate education subspecialties. Warrant officers and Limited Duty officers were also eliminated, since they are not eligible for graduate education programs.

The database was constructed by Mr. Bill King at the Defense Manpower Data Center (DMDC) in Monterey, California. The 1980 officers were pulled from

annual Navy Officer Master File tapes resident at DMDC. The observations are restricted by the criteria described above. Additionally, to account for the possibility of lateral transfers and officers who may change year groups or get recruited late, all officers in year group 1980 from each annual OMF were included, in addition to the original officers commissioned in 1980.

Annual tapes for fiscal years 1980 and 1983 were not available. Therefore, the database was constructed to include fiscal years 1981, 1982, and 1984 through 1993, for a total of 12 years. This tracks the officers to their 13th year of service. Appendix D provides a description of all the data elements that make up this database.

Both databases utilized in this study reside on the Naval Postgraduate School mainframe computer. The data were compiled using Statistical Analysis System (SAS) software. The data analysis and results are discussed in the next chapter.

IV. DATA ANALYSIS AND RESULTS

The Navy provides fully-funded graduate education (FFGE) for approximately 700 officers annually. Once an officer earns his or her master's degree, the officer is assigned a graduate-level subspecialty code. This subspecialty code identifies the officer to the Navy as a subject area expert. An additional code, the utilization code, further identifies whether the individual has been utilized. This utilization code is a one-letter alpha code (described previously in Table 3) indicating whether or not a graduate-education-based subspecialist has served a subspecialty payback tour. If the officer has served in a payback tour, the officer has fulfilled his or her obligation and the Navy has received a direct return on its investment. The graduate education utilization data element in the file is used to calculate the utilization rates for this study by dividing the number of officers who have served in a graduate-education-based subspecialty tour by the total number of graduate education subspecialist officers in the inventory.

"Utilization" is the term the Navy uses when referring to whether an officer who has received graduate education has later fulfilled his or her obligation. The Navy's utilization policy is mandated by the Department of Defense, Directive 1322.10, "Policies on Graduate Education for Military Officers." This policy states that an officer is required to serve in a billet related to the graduate education within two tours following the completion of that education. The utilization rates

are the data the Navy uses to report how well it is meeting the requirement set forth by DoD. A target utilization rate is not specified in either the DoD directive or in the OPNAV instruction 1520.23B. However, in practice PERS-213 uses 70 percent as the target. Thus, anything more than 70 percent is considered acceptable, and anything under 70 percent is considered low and needing improvement.

A. CROSS-SECTIONAL DATABASE (FY93 OMF)

Chapter III described the methodology used to construct the FY93 OMF database. The database was constructed to include only officers who could potentially participate in graduate education programs administered by the Naval Postgraduate School, which includes NPS and the Civilian Institutions (CIVINS) programs. Officers utilizing medical graduate education programs were excluded. All Limited Duty officers were excluded from the database. However, only a portion of the Staff Corps officers were not included. The term used in describing the subset of Staff Corps officers in this study is the "Adjusted Staff Corps." Table 4 provides the distribution of officers for both the original FY93 OMF extract and the adjusted FY93 OMF used in this thesis. The FY93 OMF file used in this study consists of 78 percent Unrestricted Line officers, 11.7 percent Restricted Line officers, and 10.3 percent Adjusted Staff Corps officers.

**TABLE 4. PERCENT DISTRIBUTION OF OFFICERS IN
ADJUSTED AND UNADJUSTED FY93 OMF**

COMMUNITY	ORIGINAL OMF	ADJUSTED OMF
URL	55.5	78.0
RL	7.8	11.7
MC, DC	9.3	-----
MSC, NC	9.9	0.8
SC	5.7	6.6
CEC	2.3	1.0
ChC	1.7	1.9
JAG	1.3	-----
LDO	6.5	-----
TOTAL	100.0	100.0

Source: Fiscal 1993 Officer Master File.

Unrestricted Line officers constitute the majority of the adjusted OMF and have been the focus of previous studies of utilization [Refs. 10 and 11]. However, the Restricted Line and Staff Corps are also analyzed in this study. Utilization tends to be higher in the Restricted Line and Staff Corps communities. Due to their specialized missions, they tend to assign their officers directly to their graduate education subspecialty payback tour. The majority of the Unrestricted Line designators, due to operational needs, are assigned to primary warfare

billets following graduate education. This assignment practice generally results in a low utilization rate for URL officers.

Table 5 shows the number of officers by designator and graduate education subspecialists and the percentage officers with graduate education by designator community. Of the URL, the General Unrestricted Line (GenURL) officers have the highest percentage of FFGE subspecialists within their community. Of the Surface Warfare Officers, 12.5 percent are FFGE subspecialists. The remaining URL designators have 7 percent or fewer FFGE Subspeciallyists. In contrast, nearly 40 percent of the Restricted Line officers are FFGE subspecialists and close to 13 percent of the Staff Corps officers are FFGE subspecialists.

The Restricted Line and Staff Corps assign officers directly to subspecialty billets, whereas other designators assign officers to warfare billets or leadership billets following graduate education. The URL community comprises 53.9 percent of the Navy's FFGE subspecialists. The majority of these officers face trade-off between requirements for assignment to their subspecialty utilization tour or to a career-essential warfare assignment. This means that over half of the Navy's graduate-educated officers find it difficult to fulfill their graduate education subspecialty payback tour.

**TABLE 5. PERCENT OF OFFICERS WITH GRADUATE
EDUCATION BY COMMUNITY, FISCAL 1993**

DESIGNATOR	COMMUNITY	END STRENGTH	GRAD ED	% GRAD ED
	UNRESTRICTED LINE	30,991	2,777	9.0
GENERAL URL		2,550	491	19.3
SURFACE		7,525	938	12.5
SUBMARINE		3,289	203	6.2
SPECIAL WARFARE		438	32	7.3
SPECIAL OPERATIONS		366	22	6.0
AVIATOR (PILOT/NFO)		16,823	1,091	6.5
	RESTRICTED LINE	4,663	1,846	39.6
ENG DUTY OFF		1,127	890	80.0
AVIATION DUTY OFF		959	355	37.0
SPECIAL DUTY OFF		2,154	372	17.3
OCEANOGRAPHY OFF		423	229	54.1
	ADJUSTED STAFF CORPS	4,091	527	12.9
MEDICAL SERVICE CORPS		242	57	23.6
NURSE CORPS		71	38	54.0
SUPPLY CORPS		2,610	336	14.0
CHAPLAIN CORPS		761	22	2.9
CIVIL ENG CORPS		407	74	18.2
TOTAL		39,745	5,150	13.0

Source: Fiscal 1993 Officer Master File.

Table 6 lists the percentage of officers with graduate education by broad designator categories. Of all officers in the Navy, 13 percent are FFGE subspecialists, distributed as follows: Unrestricted Line, 7.0 percent; Restricted Line, 4.7 percent; and Staff Corps, 1.3 percent. The remaining 87.0 percent either do not have a subspecialty or hold an experience-based subspecialty not requiring graduate education.

TABLE 6. PERCENTAGE DISTRIBUTION OF OFFICERS BY FFGE

DESIGNATOR COMMUNITY	% OF OFFICER CORPS
UNRESTRICTED LINE WITH FFGE	7.0
RESTRICTED LINE WITH FFGE	4.7
STAFF CORPS WITH FFGE	1.3
SUBTOTAL	13.0
OFFICERS WITHOUT FFGE	87.0
TOTAL	100.0

Source: Fiscal 1993 Officer Master File.

Using the FY93 OMF described above, subspecialty utilization was analyzed by looking at DoD compliance. For this study, "DoD compliance" means an officer who was utilized one or more times within the two-tour window. "Overall compliance" in this study means the officer served one or more tours in his or her subspecialty area either "inside" or "outside" of the two-tour window of compliance

established by DoD. The data were first sorted by FFGE subspecialties. Once the data were sorted by subspecialty, DoD compliance was evaluated in three ways: first by overall subspecialty, second by gender, and finally by designator. The designators were combined into the following broad categories, as specified in Table 2: Unrestricted Line officer, Restricted Line officers, and Staff Corps officers.

Two methods can be used to calculate utilization. The first approach includes as "eligible" the officers who have earned an FFGE subspecialty, are one tour out of school, and have not served yet in a subspecialty tour. These officers are termed "must use next," because the officers need to serve in a graduate subspecialty billet within the next tour to comply with the DoD requirement. The "must use next" officers are included in the FFGE inventory numbers of eligible graduate-educated officers. The assumption behind this approach is that these officers are available in the inventory for assignment and should be reflected as such in the statistics.

The second approach excludes the "must use next" officers from the eligible inventory. The theory behind this second approach is that the "must use next" officers are not available for assignment to subspecialty billets due to warfare assignment needs. These officers still have one tour to comply with DoD policy and therefore should not be included in the utilization calculation. The second method obviously results in higher utilization rates because the "must use next" officers are not included in the denominator (inventory). PERS-213 uses the

second method when calculating utilization rates. Both methods are employed in this study. The utilization rates are provided for both the calculation including and excluding the "must use next" officers from the inventory.

There is an additional factor to consider. In practice, assignment officers will assign subspecialists with an F or G code, termed "OTHER," to an FFGE subspecialty coded billet. Therefore, a third approach suggests the OTHER officers should be counted when determining the utilization rates. This approach, however, is not followed in this thesis.

Appendix E, Tables 12 through 23, provides the utilization statistics regarding DoD compliance by subspecialty area. Utilization rates are presented in three different ways: first, by subspecialty with all designators combined; second, by subspecialty and gender; and third, by subspecialty and designator. For each of the three approaches, the utilization rate is calculated both including and excluding the "must use next" officers. Listed across the top of the table are the following: the SubSpecialty Code (SSC), or the two-number code identifying the subspecialty; DoD compliance (DOD COMP), the number of officers who have served in a subspecialty tour within two tours; overall compliance (OVERALL COMP), the number of officers who have served in a subspecialty tour before or after the two-tour window of compliance; FFGE, the number of officers in inventory with graduate education subspecialties; FFGE & OTHER, the number of FFGE officers in inventory plus the officers with more than a bachelor's degree but less than a master's degree or a master's degree not fully meeting the Navy's

criteria; % DOD COMP, the percentage of officers who served in a subspecialty tour within the two-tour window established by DoD; and % OVERALL COMP, the percentage of officers who served in a subspecialty tour at any time in their career. The rate of overall compliance includes both the officers who served within the two-tour window of compliance and those who served in a subspecialty tour at any time in their career.

Tables 12 and 13 (Appendix E) provide the utilization rates for the FFGE subspecialties for, all designators combined. Table 12 (Appendix E) utilization rates include the "must use next" officers. Table 13 (Appendix E) provides the utilization rates excluding the "must use next" officers. A comparison of the two methods of calculating the utilization rate indicates a dramatic increase in the utilization rate when the "must use next" officers are excluded. This trend is consistent for the data in Tables 12 through 23 (Appendix E).

Table 13 (Appendix E) provides the utilization rates using the PERS-213 method. The DoD compliance utilization rates for the National Security Affairs curricula (XX16 through XX28) range from 50 percent to 63.6 percent, while Transportation Management has the lowest utilization rate at 45.5 percent. The majority of the remaining curricula have a utilization rate close to 70 percent or higher.

Tables 14 through 17 (Appendix E) provide utilization rates for officers by gender. Tables 14 and 16 (Appendix E) provide the utilization rates including the "must use next" officers. Tables 15 and 17 (Appendix E) provide a comparison

of utilization rates by gender, computed using the PERS-213 method of calculating the utilization rate. An examination of National Security Affairs, subspecialties XX20 through XX28, reveals that male officers tend to have a higher utilization rate than their female counterparts. On the other hand, in the Systems Management subspecialty areas (XX31 through XX37), female officers tend to have a higher utilization rate than male officers. For the technical subspecialties, female officers tend to be in smaller numbers, but utilization is higher.

Tables 18, 20 and 22 (Appendix E) provide the utilization rates for URL, RL and Staff Corps calculated including the "must use next" officers. When the utilization rates from these tables are compared with the utilization rates using the PERS-213 method, they are again higher.

Table 19 (Appendix E) provides the utilization rates for URL officers. Subspecialties with DoD compliance exceeding 70 percent include: Space System Operations, Communications Engineering, Nuclear Mechanical Engineering, Electronic Warfare, and Anti-Submarine Warfare. Subspecialties with the lowest DoD compliance rates in the URL community include: General Area Studies, European studies, Strategic Planning, Material Logistic Support Management, Material Professional Management, and Chemistry. The high utilization rates are in areas that may have graduate education-coded warfare billets. The low utilization rates in the area studies may be due to a mismatch in paygrade between when an officer earns the P-code and the paygrade of the

P-coded billet. Many of the area studies billets are for paygrades O-5 and O-6. However, the officers are earning their P-codes at O-3 and O-4.

Table 21 (Appendix E) provides the utilization rates for RL officers. Evaluation based on DoD compliance indicates that subspecialties with the highest utilization rates are Communication Engineering, Space System Operations, Space Systems Engineering, Electrical Engineering, and Nuclear Mechanical Engineering. These utilization rates are high because the officers are able to serve in a payback tour immediately after completing graduate education. Many subspecialties had a utilization rate of zero. The RL officers with these subspecialties probably earned their subspecialty prior to becoming an RL officer.

Table 23 (Appendix E) provides the utilization rates for Staff Corps officers. The data indicate that all of the Staff Corp officer subspecialties have a utilization rate above 73 percent (based on DoD compliance).

1. Subspecialty Utilization

Table 7 provides the utilization rates for all FFGE subspecialty codes combined for the following categories: all officers in the FY93 OMF; officers by gender; and officers by designator communities. The table lists utilization rates for officers who served in an FFGE subspecialty tour both within the DoD two-tour window of compliance (DOD COMP) and those who served in an FFGE subspecialty tour at any time in their career (OVERALL COMP). Utilization rates

are calculated both including and excluding the "must use next" officers in the denominator.

The utilization rates for all FFGE subspecialists combined indicate that the Navy has done relatively well (based on the PERS-213 standard of 70 percent) in utilizing its FFGE subspecialists; 78.2 percent of the FFGE subspecialists in the officer inventory in 1993 were utilized within the DoD two-tour

TABLE 7. UTILIZATION RATES OF FFGE OFFICERS: FY93 OMF

CATEGORY	PERCENT	DOD COMPLIANCE	PERCENT	OVERALL COMPLIANCE
	INCLUDING*	EXCLUDING*	INCLUDING*	EXCLUDING*
ALL OFFICERS	54.6	78.2	63.2	90.5
GENDER:				
MALE	54.5	76.6	63.7	89.4
FEMALE	57.3	76.0	62.2	81.8
DESIGNATOR:				
URL	41.7	60.5	47.5	69.6
RL	77.9	80.3	86.9	92.0
STAFF CORPS	68.3	85.5	78.3	98.6

Source: FY93 OMF.

* INCLUDING = includes "must use next" officers
EXCLUDING = excludes "must use next" officers

window of compliance, and 90.5 percent of the FFGE subspecialists were utilized at some point during their career. However, if the "must use next" officers are included in the base, DOD COMP utilization is calculated at 54.6 percent, while the overall utilization rate is 63.2 percent. Any conclusion about the Navy's successful utilization of its FFGE officers depends, then, on which definition is used.

Table 7 also provides utilization rates for FFGE officers by gender. For those officers who served in a payback tour within the DoD two-tour window, there was little difference between male and female officers. Male officers had a utilization rate of 76.6 percent (excluding "must use next"), compared with a rate of 76 percent for female officers. Both utilization rates are over 70 percent and are thus considered acceptable according to the PERS-213 standard. A higher utilization rate for female officers than for male officers was expected because the majority of women are General Unrestricted Line officers and do not have to return to warfare billets. Female officers are consequently more available for assignment to a payback tour. However, the data show that male and female officers are being utilized at a comparable rate. The overall compliance rates differ by gender: male officers have a utilization rate of 89.4 percent and female officers have a rate of 81.8 percent. This means that 10.6 percent of the male officer FFGE subspecialists and 18.2 percent of the female FFGE subspecialists fail to serve in an FFGE subspecialty billet at any time in their career. This lower utilization rate for female officers may reflect a more defined career path. The majority of the female officers are General Unrestricted Line officers and, although

they do not have a warfare specialty that requires them to go to sea, they do have a defined career path, with leadership being the primary concern to maintain the competitive edge within the community.

The designators for this study have been combined into three categories: Unrestricted Line officers, Restricted line officers, and Staff Corps officers. The utilization rate for URL officers is 9.5 percentage points below the standard of 70 percent. Overall, this means that nearly 40 percent of the Unrestricted Line officers are not utilized within two tours of earning their FFGE subspecialty. However, for overall compliance, the utilization rate for URL nearly meets the target of 70 percent. The results for the RL and the Staff Corps indicate a healthy FFGE subspecialty utilization management system. Only 8 percent of Restricted Line officers and 1.4 percent of Staff Corps officers failed to ever utilize their FFGE subspecialty.

2. "Must Use Next" Officers

Table 7 looks at utilization rates both including and excluding officers in the "must use next" category. The data show that by excluding this group of officers from the inventory, the utilization rate increases by between 18 and 24 percentage points. In most cases, excluding the "must use next" officers brings the utilization rate above 70 percent and within the acceptable range for the Navy. Additionally, the data show that there are more male officers in the "must use

TABLE 8. UTILIZATION RATES BY DESIGNATOR FOR DOD COMPLIANCE AND OVERALL COMPLIANCE

DESIGNATOR	DOD COMPLIANCE	OVERALL COMPLIANCE
GENERAL UNRESTRICTED LINE	60.8	66.7
SURFACE WARFARE	63.8	75.8
SUBMARINE	69.0	75.4
SPECIAL WARFARE	56.7	76.7
SPECIAL OPERATIONS	30.8	38.5
AVIATORS	59.9	67.5
TOTAL UNRESTRICTED LINE OFFICERS	60.5	69.6
ENGINEERING DUTY OFFICERS	87.7	98.5
AVIATION DUTY OFFICERS	75.2	89.0
SPECIAL DUTY OFFICERS	64.6	76.1
OCEANOGRAPHY	83.7	94.1
TOTAL RESTRICTED LINE OFFICERS	80.3	92.0
MEDICAL SERVICE CORPS	91.8	93.4
NURSE CORPS	57.9	60.5
SUPPLY CORPS	78.7	93.7
CIVIL ENGINEER CORPS	75.0	89.1
TOTAL STAFF CORPS	85.5	98.6

Source: FY93 OMF.

next" category, and that the URL community has the largest number of "must use next" officers. These data are indicative of the current policies and needs of the

Navy. The majority of the URL officers are male, and their career path demands that they go to an operational tour immediately following FFGE.

3. Summary Analysis of Subspecialty By Designator

Table 8 provides a summary of DoD compliance and overall compliance by designator. Comparison of the utilization rates by designator community better describes how well each designator community manages the placement of FFGE subspecialty officers within a given area.

Unrestricted Line officers have the lowest DoD compliance utilization rates of the groups examined here. Of the Unrestricted Line officer designators, the two lowest utilization rates for DoD compliance are Special Operations officers, at 30.8 percent, and Special Warfare officers, at 56.7 percent. The highest utilization rates among the Unrestricted Line officers are Submarine officers, at 69.0 percent, and Surface Warfare officers, at 63.8 percent. The utilization rate for all URL officers combined is 60.5 percent, 9.5 percentage points below the Navy's target of 70 percent.

In the Restricted Line officers community, Special Duty officers are the only designator that fails to meet the 70 percent DoD target, with a utilization rate of 64.6 percent. The remaining designators--Engineering Duty officers, Aviation Duty officers, and Oceanographers--all have relatively high utilization rates. The utilization rate for all Restricted Line officer designators combined is 80.3 percent.

Staff Corps officers combined have the highest DoD utilization rates compared with all officer designator communities. However, within the Staff

Corps, the Nurse Corps has the lowest utilization rate, at 57.9 percent. The Medical Service Corps has the highest DoD compliance utilization rate, at 91.8 percent. The DoD compliance utilization rate for all of the Staff Corps officer designators combined is 85.5 percent.

Using overall compliance as the criterion, only four designators fail to meet the 70 percent target the Navy uses to measure successful subspecialty utilization. General Unrestricted Line officers are at 66.7 percent, Special Operations officers at 38.5 percent, Aviators at 67.5 percent, and the Nurse Corps officers at 60.5 percent. The majority of the officer designators participating in FFGE demonstrate high utilization of their FFGE subspecialists.

Although the data show that the Navy is generally achieving its targeted utilization rate for FFGE subspecialists, the same cannot be said for the URL community. The Navy as a whole achieves its goal because the RL and Staff Corps have such high utilization rates. It is the RL and Staff Corps assignment practices for subspecialty utilization that are the real success to the Navy's "healthy" subspecialty system.

The Navy's reporting criteria for utilization rates may need to be reevaluated. The Navy currently excludes the "must use next" officers from its inventory when calculating utilization rates. The officers in this group are probably the Navy's most valuable asset in the area of advanced education and in ensuring that the Navy earns a return on its investment. Many of the subjects learned in postgraduate education are of a technical nature and have a short "shelf-life."

The "must use next" officers will prove to be an asset at any time in their career. However, when considering retention of knowledge and technical obsolescence, these individuals are of greater value when used immediately following their education. Therefore, by eliminating these officers from the inventory for reporting purposes, they are also not being managed by the subspecialty system, and the Navy is receiving less of a return on its investment.

B. LONGITUDINAL DATABASE (1980 OMF COHORT)

The 1980 Cohort database was provided by the DMDC for this study. The data elements are described in Appendix D. Each data element is repeated for each successive year of the cohort. The 1980 Cohort database was constructed by going back to historic copies of the OMF and extracting only officers commissioned in 1980, using the same designators and subspecialties as described in Chapter III.

Tables in Appendix F provide a picture of the 1980 COHORT database. Appendix F, page 88, describes the officer population by rank for each year included in the cohort data base. The distribution of officers by rank is an estimate of what would be expected under typical conditions. Within each rank there are officers who get promoted early, those who get promoted on time, and those who get promoted late.

Appendix F, page 89, provides the distribution of officers by year and by gender. Female officers comprise almost 13 percent of the 1980 Cohort. This

percentage of female officers is higher than the 9.3 percent female population in the FY93 OMF.

Appendix F, page 90, provides the distribution of subspecialty level by year. The number of individuals with a G-code, or other graduate education, shows a sharp increase in the third year and then a steady decline through year thirteen. In contrast, the FFGE subspecialties M, N, P, Q, C, and D indicate a steady increase through year thirteen at which point the number of FFGE-coded officers is over double the number of G-coded officers.

Table 9 provides the frequency of officers by subspecialty level and designator for both officers who reached the rank of Lieutenant Commander (LCDR) and those who did not. The subspecialties have been grouped into four categories: subspecialty levels C,D,M,N,P,and Q are considered "FFGE" subspecialty levels; levels F and G are referred to as "OTHER"; levels R, S, and T indicate subspecialties gained through experience, and are referred to as "EXP"; and officers with no subspecialty code are categorized as "NONE."

The data reveal the following information for the officers who achieved the rank of LCDR: of all designator communities combined, 31.8 percent had no subspecialty, 29.8 percent had an FFGE subspecialty, 20.5 percent had other graduate education, and 17.8 percent had an experience-based subspecialty. Within the Unrestricted Line community, the designators varied greatly in the mix of subspecialty types. The General Unrestricted Line community had the largest percentage of officers (42.6 percent) who were FFGE subspecialists. Also, 31.3

TABLE 9. PERCENTAGE DISTRIBUTION OF THE HIGHEST SUBSPECIALTY ACQUIRED BY COMMUNITY AND RANK: 1980 COHORT

		<	LCDR					
	FFGE	OTHER	EXP	NONE	FFGE	OTHER	EXP	NONE
COMMUNITY								
TOTAL NAVY	4.0	13.3	3.0	80.0	29.8	20.5	17.8	31.8
URL	3.3	15.9	2.8	78.0	21.3	23.2	21.3	34.2
GEN URL	7.6	5.0	7.4	80.0	42.6	10.8	31.3	15.3
SURFACE	2.4	7.0	1.3	89.3	20.1	19.0	23.5	37.3
SUBMARINE	1.0	89.9	0	9.1	3.5	94.5	1.0	1.0
AVIATION	2.7	1.1	2.9	93.3	20.4	12.8	21.7	45.1
RL	11.0	7.5	5.2	76.3	52.5	14.7	9.1	23.7
STAFF CORPS	5.6	2.8	2.8	88.8	44.6	14.7	11.2	29.5

Source: 1980 OMF cohort file

percent of LCDRs in this community were experience-based subspecialists, 15.3 percent had no subspecialty, and 10.8 percent had other graduate education. Just over 37 percent of LCDRs in the Surface Warfare community did not have a subspecialty. At the same time, 23.5 percent of the Surface Warfare officers had an experience-based subspecialty, 20.1 percent had an FFGE subspecialty, and 19.0 percent had other graduate education subspecialties. The Submarine community maintained the largest proportion of LCDRs (94.5 percent) with other graduate education subspecialties (Nuclear Power Training); 3.5 percent had an FFGE subspecialty, 1.0 percent were experience-based and the same proportion had no subspecialty. The Aviation community had the highest proportion of LCDRs without a subspecialty, 45.1 percent, while 21.7 percent had an experience-based subspecialty, 20.4 percent had an FFGE subspecialty, and 12.8 percent had other graduate education subspecialties. The Restricted Line had the highest proportion of LCDRs with an FFGE subspecialty, 52.4 percent; 23.7 percent had no subspecialty; 14.7 percent had other graduate education subspecialties; and 9.1 percent had an experience-based subspecialty. In the Staff Corps, 44.6 percent of LCDRs had an FFGE subspecialty; 29.5 percent had no subspecialty, 14.7 percent had other graduate education subspecialties; and 11.2 percent had an experience-based subspecialty.

Table 10 shows the utilization rates for FFGE subspecialists based on the DoD criterion of utilizing an officer within two tours. The table lists the community type in the left column, the total number of officers in each category for the 1980

**TABLE 10. UTILIZATION RATES OF FFGE SUBSPECIALISTS BY COMMUNITY:
1980 COHORT**

		UTILIZATION RATE (PERCENT)				
COMMUNITY	TOTAL NUMBER	GRAD ED NUMBER	ONE TOUR IN	MULTI TOUR IN	"MUST USE NEXT"	NOT USED AS OF 30 SEP 93
URL	3,682	253	25.0	0.4	38.0	3.6
GEN URL	638	111	29.7	0	36.0	4.5
SURFACE	1,215	96	10.4	0	89.6	0
SUBMARINE	464	7	85.7	0	0	0
AVIATION	1,265	130	11.0	0.1	80.8	2.3
RL	494	187	62.6	5.3	31.0	1.1
STAFF CORPS	805	140	59.3	2.9	42.1	0.7
TOTAL	4,981	680	39.4	2.2	31.3	1.8

Source: 1980 OMF Cohort

cohort, and the number of graduate-educated officers within each designator. Utilization rates are shown in Table 10 for the following categories: within the two-tour DoD window of compliance (ONE TOUR IN); multiple tours within the DoD window of compliance (MULTI TOUR IN); officers one tour out who are not serving in a payback tour so they must be used next to be counted within the DoD window of compliance (MUST USE NEXT); and those FFGE subspecialty officers who had the opportunity but never served in an FFGE subspecialty payback tour (NOT USED).

By fiscal 1993, 39.4 percent of the FFGE subspecialists in year group 1980 had been utilized within the first tour following completion of their graduate education. Another 2.2 percent of these officers were utilized within two tours for a utilization rate of 41.6 percent based on the DoD standard. Of the FFGE subspecialty officers, 31.3 percent were in the "must use next" category and 1.8 percent had been categorized as not used. Utilization rates for officers in the Unrestricted Line community varied somewhat by designator. For example, General Unrestricted Line officers had a utilization rate of 29.7 percent; 36.0 percent of the FFGE subspecialists were in the "must use next" category; and 4.5 percent were never used. At the same time, the majority of Surface Warfare FFGE subspecialists (89.6 percent) were in the "must use next" category, and only 10.4 percent had been utilized within the DoD window of compliance. The Submarine community had the fewest FFGE subspecialists, but the highest utilization rate at 85.7 percent. The utilization rates for the Aviation community

were similar to those of the Surface Warfare community: 80.8 percent of FFGE subspecialists were in the "must use next" category, while only 11.0 percent had been utilized. The Restricted Line community had the highest DoD compliance utilization rate, 67.9 percent, while 31.0 percent of the FFGE subspecialists were in the "must use next" category, with 1.1 percent shown as not having used their subspecialty. The Staff Corps had the second-highest DoD compliance utilization rate, 62.2 percent; 42.1 percent of the FFGE subspecialists were in the "must use next" category; and 0.7 percent were categorized as not having used their subspecialty.

Utilization rates are relatively low in the 1980 Cohort when compared with rates found in the FY93 OMF, (see Table 8). However, it is interesting to note that the same relationship exists between officer communities in both databases. For example, both the RL and Staff Corps designators have a comparatively high utilization rate, while the URL designators are lower. Submariners do the best in utilization while Gen URL are next in line, and Aviation and Surface designators are about the same.

The 1980 Cohort is limited when used to gauge utilization. The cohort is only 13 years old as of 1993. The officers attended graduate education at year-of-service 8 and up. Therefore, for some individuals, there has not been enough time to serve in a "payback" within two tours.

The 1980 Cohort database offers a look at how subspecialties and the designator communities behave with respect to separation and retention rates.

The Navy's return on its investment in human capital is realized by having the individual stay through a 4-year commitment and serve in a subspecialty payback tour. If an officer were to stay beyond a 4-year obligation and continue to serve in a payback tour, then the Navy would receive additional economic benefit.

Table 11 shows the separation rates of officers in the 1980 Cohort by year for FFGE and non-FFGE officers. The data indicate that FFGE subspecialists in

TABLE 11. PERCENT OF OFFICERS WHO LEFT THE NAVY BY FFGE STATUS AND YEAR, 1981-1993

YEAR	FFGE	NON-FFGE
81	6.0	6.6
82	2.5	4.2
84	0.2	11.8
85	16.9	19.0
86	7.8	13.1
87	5.5	18.1
88	2.4	11.3
89	1.1	11.3
90	2.0	8.4
91	4.6	12.1
92	4.8	18.9
93	3.5	8.9
AVERAGE	4.8	11.2

Source: 1980 Cohort.

the 1980 Cohort left the Navy at a lower rate than did non-subspecialists. The discharge rates vary over the 13 years covered in the study. However, in years 4 through year 13, non-subspecialty officers depart from the Navy at a noticeably higher rate than FFGE subspecialists.

Retention rates were calculated by taking the number of officers for the year 1993 in each of the three subspecialty code categories, FFGE, OTHER, and NONE, and dividing that number by the total number of officers in that subspecialty code category for the 1980 Cohort. For example, the 1980 Cohort had 630 FFGE subspecialists over the 13-year period covered by the data; of those, 562, or 89.2 percent, were still in the Navy as of 1993. Of the OTHER subspecialists, 33.7 percent remained in service as of 1993, while officers in the "NONE" category had a retention rate of only 25.7 percent.

An additional variable was created to determine how many FFGE subspecialists remaining in the service in 1993 still had their graduate education commitment. The graduate education commitment is defined as the four-year obligation the officer receives upon completing an FFGE program. Of the 562 FFGE subspecialists on active duty in 1993, only 26.9 percent (or 151 officers) still had a graduate education commitment. In other words, 73.1 percent of all FFGE officers (411) remained in service past their commitment. This retention rate is double that of the two non-FFGE groups.

Retention of FFGE subspecialists beyond the 4-year obligation is a positive outcome for the Navy. The Navy appears to be receiving a return on its

investment from the differential in retention. It could be that the individuals with graduate education feel they have an increased promotion opportunity which encourages them to stay to the next promotion point.

C. SUMMARY

In summary, the FFGE subspecialty system appears to be managed effectively. The cross-sectional, FY93 OMF data looked at all officers in the Officer Master File at a specific point in time. The data encompassed all paygrades and lengths of service. The FY93 OMF data indicate that the Navy utilizes FFGE subspecialists at an acceptable rate--78.2 percent-- based on the PERS-213 standard. However, utilization rates tend to vary by designator community. The Unrestricted Line officer community, for example, continues to have relatively low utilization rates. On the other hand, the Restricted Line and Staff Corps utilization rates remain relatively high. With the exception of the Nurse Corps, all other designators within both the Restricted Line community and the Staff Corps community have an FFGE subspecialty utilization rate greater than 70 percent. The 1980 Cohort data looked at officers from the same entry group to see what effect an FFGE had on retention. The data indicate that officers who received FFGE are being retained longer than officers who did not receive FFGE.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This study examined several measures of the Navy's return on its investment in the graduate education of officers. The Navy provides a fully-funded graduate education program that sends an officer to graduate school for two to three years. The Navy's investment can be calculated as direct cost of providing graduate education plus the opportunity cost of the officer not being available for assignment to his or her primary warfare specialty during the two years (or less) of graduate education.

The Navy has a policy to ensure a return on its investment. First, the officer incurs a 4-year obligation to remain in the Navy upon completion of his or her graduate education. In addition to the 4-year commitment, the officer is required to serve in an FFGE subspecialty billet related to the area of education within two tours of completing that education. The Subspecialty System is used to track whether an officer serves in a "payback" tour or has been utilized.

The study used two databases to analyze utilization and retention: the 1993 officer master file and a cohort file on officers who were commissioned in 1980. The fiscal 1993 Officer Master File is a snapshot in time that provides a picture of what the Navy looked like in 1993. It is significant to note that the year 1993 marked the approximate midpoint of the defense downsizing. Thus, it represents

the composition of the officer population after two years of the Variable Separation Incentive (VSI) and Special Separation Benefit (SSB) programs (voluntary incentive for force reduction), and two years of the Selected Early Retirement Boards. This snapshot in time comes just prior to implementation of the 15-year retirement program. Data for 1993, consequently, may not be representative of a more normal year. The 1980 cohort file tracks officers commissioned in 1980 through their thirteenth year of service.

This study analyzed FFGE subspecialty utilization: first by combining all the subspecialties together, second by gender, and finally by designator. Appendix E, page 77, provides a list of subspecialties and the utilization rate of individual subspecialties using the DoD compliance and overall compliance criteria. The overall utilization rate for all FFGE subspecialists is 78.2 percent, which exceeds the Navy's compliance utilization rate guideline of 70 percent. While this is an acceptable rate, improved utilization can be achieved if subspecialty sponsors pay closer attention to the utilization statistics for each subspecialty and mandate better placement of FFGE subspecialty-coded officers into FFGE subspecialty-coded billets.

Of the 53 subspecialties used in this study, three quarters have a DoD compliance rate of 70 percent or greater. Thus, the Navy is receiving a fair return on its investment for the vast majority of its FFGE subspecialties. However, this still leaves about one in four subspecialties with unacceptably low utilization, based on the DoD criteria. The areas with a relatively low utilization rate are:

Joint Intelligence, Naval Technical Intelligence, National Security Affairs, Strategic Planning, Transportation Management, Material Professional Management, Meteorology, and Operations Oceanography.

Utilization by gender indicates little difference between male and female officers. This may be due to the expanding presence of women in nontraditional designators, or a shift of female officers to the Restricted Line or Staff Corps communities.

The analysis of utilization by designator is the most valuable because the root of success in utilizing FFGE subspecialists is the assignment of officers to subspecialty billets. The assignment process focuses primarily on the officer's community and the specific needs of that community. The subspecialty codes are managed by the Primary Consultants. The Primary Consultant "owns" the subspecialty-coded billets, but the communities own the officers, and, in practice, it is the designator needs that take priority over the subspecialty needs of the Primary Consultant. The analysis of utilization by designators can provide a place to target improvement efforts. The results of this study indicate that the Navy does relatively well in utilizing its Restricted Line and Staff Corps FFGE subspecialists, but there is room for improvement within the Unrestricted Line officer community. Specific attention should be paid to the General Unrestricted Line community and the Aviation community. These officer communities are large enough so that any improvements in utilization would have a noticeable impact

on the utilization rate for the entire Unrestricted Line community and that of the Navy as a whole.

The results of the analysis of the 1980 Cohort data indicate the FFGE subspecialist has a higher retention rate than his or her counterpart without FFGE. However, due to the relatively short tenure of the 1980 group (13 years), utilization cannot be fully evaluated. Although some of the officers in the 1980 group may have passed the two-tour DoD window, others may still be placed in an FFGE subspecialty later in their career.

B. RECOMMENDATIONS

The FFGE utilization rates are generally "acceptable" and the subspecialty system appears to be functioning well. Nevertheless, there is room for improvement in several aspects of managing the subspecialty system. Two recommendations are offered.

Many of the FFGE subspecialty billets are coded as 1000, meaning that any type of Unrestricted Line designator (1XXX) could fill the billet. The way the Navy manages the 1000 billets is to distribute them among the Unrestricted Line designators on a "fair share" basis. The method for determining which 1000 billets go to which designators is called the "Billet Fill Decision."

Each URL designator has a certain number of 1000 billets, and some of these 1000 billets are FFGE subspecialty-coded billets. When the detailers attempt to fill these billets, they try to meet the FFGE subspecialty needs.

However, if they do not have a match, they fill the FFGE subspecialty-coded billet with someone who does not have a matching subspecialty code or or may not even possess a subspecialty code.

All of the 1000-designated FFGE subspecialty-coded billets could be combined under the subspecialty management umbrella, rather than be distributed on a "fair share" basis to the various designator communities. Under an assignment system of this type, detailers could use the pool of 1000 billets and more effectively make an FFGE subspecialty match. With a system of pooled billets, if any one designator did not have an FFGE subspecialty match for a particular billet, then the billet would go to another designator to be filled with a subspecialty match. If the number of FFGE subspecialty billets available to each designator are expanded and the number of FFGE sub-specialists available to fill the billets are increased, then there would tend to be a higher matched fill rate of subspecialists to billets.

The Subspecialty System includes a method for monitoring officer FFGE subspecialty utilization. Every time an FFGE subspecialist is up for reassignment, the officer's orders must cross the subspecialty manager's desk, PERS-440, to evaluate the officer's utilization status. It is at this stage that the officer is assigned a code identifying whether the assignment is a payback tour, as shown in Table 3. The PERS-440 officer who evaluates and assigns the utilization code can override assignment of an officer to a subspecialty payback assignment. This usually occurs when an officer has a competing need for assignment to a

leadership or warfare designator, such as an XO tour. When an officer is assigned to a warfare or leadership billet instead of an FFGE subspecialty billet, the subspecialty assignment requirement is said to have been "waived."

This waiver process has contributed to some of the lower utilization rates. Since the waiver process is an administrative function provided by a PERS- 440 staff officer, it may need to be monitored by the Primary Consultants so it does not become a rubber stamp, or the function might be better managed by the Primary Consultants and not the PERS-440 staff. The PERS-440 staff may have conflicting interests since their mission is detailing to the "needs of the Navy" and the assignment priority is to fill operational units first. It would follow, then, that the PERS-440 subspecialty reviewing officer may not be representing the needs of the subspecialty communities as opposed to assignment needs in general.

C. FUTURE AREAS FOR RESEARCH

1. FFGE Subspecialty Billet Study

A study of FFGE subspecialty billets could be conducted to determine how well these billets are being filled with either FFGE subspecialists who have an exact subspecialty match or those who merely have a related subspecialty. A study of this type would reveal problem areas and assist Primary Consultants in improving the management of their subspecialties.

2. Cohort Study

Most officers attend graduate school at years 6 through 8. The 1980 Cohort file used here, however, only provided 5 years of post-FFGE data. Any future studies of this type should use data from an older year group, allowing analysis of the years 8 through 20. These additional years would include more career milestones, such as selection as executive officer, promotion to commander, selection as a commanding officer, and joint qualifications, to name a few. It would also track retention out to 20 years.

3. Subspecialty Management by Unrestricted Line, Restricted Line and Staff Corps Communities

A study of FFGE subspecialist assignment policies should be conducted to evaluate the assignment practices and policies of the three communities. Given the successful management of the Restricted Line and Staff Corps communities, their management policies and techniques may be applicable to the Unrestricted Line officer community.

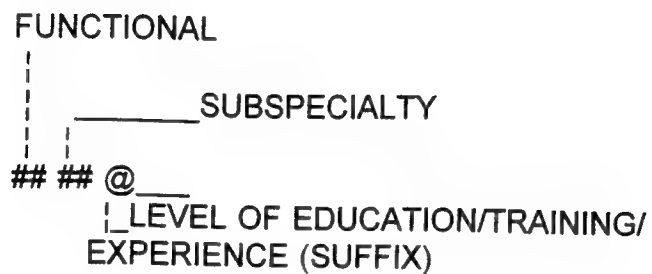
In summary, the present study suggests that the Navy's FFGE officers as a whole are being utilized at an acceptable rate and tend to be retained in greater proportion than officers without graduate education. Due to the many and varied career paths of the different designators, the sea/shore rotation requirements, the Joint-duty assignments and training, as well as the specialized track the Restricted Line officers and Staff Corps officers follow, the Navy has decided that a utilization rate of at least 70 percent can be used to gauge

"sucess". At the 70 percent rate, the Navy is receiving a fair return on its investment. It is evident through the data presented in this study that the Restricted Line and Staff Corps communities boost the overall utilization rate for the Navy, compensating for the sea/shore constraint on the Unrestricted Line communities. However, at this point, the Navy is doing a relatively good job in managing the FFGE subspecialty system and utilizing its FFGE sub-specialty officers.

APPENDIX A

DEFINITION OF SUBSPECIALTY CODE FIELDS

o DEFINITION OF FIELDS



NOTE: The subspecialty code is made up of five characters consisting of four numerals and one alphabetic code: #####@

**SUBSPECIALTY CODE FUNCTIONAL FIELDS
(1ST AND 2ND CHARACTERS)**

Background Experience

Functions Fields are only assigned by board action.

10XX NO LONGER ASSIGNED
20XX PUBLIC AFFAIRS
30XX INTELLIGENCE
40XX NAVAL WARFARE
50XX COMMAND & CONTROL
60XX PLANS AND PROGRAMS
61XX PROGRAM APPRAISAL
62XX RESOURCE ALLOCATION
70XX POL-MIL/STRAT PLAN
80XX MATERIAL SUPPORT
81XX LOGISTICS SYSTEM
82XX MATERIAL SYSTEM
83XX RDT&E
90XX MANPOWER-PERSONNEL
91XX RESERVE MANPOWER-PERSONNEL
00XX Officer: If functional fields do not apply 00 is assigned.

Billet: Should be assigned unless special need for a functional code is required. This is the preferred on a billet.

SUBSPECIALTY CODE EDUCATION/TRAINING/EXPERIENCE FIELDS (3RD AND 4TH CHARACTERS)

XX10 PUBLIC AFFAIRS	XX49 OPERATIONAL OCEANOGRAPHY
XX11 ENGLISH	XX50 NAVAL SYS ENG (GEN) [A]
XX12 HISTORY	XX51 NAVAL CONSTRUCTION & ENG
XX16 JOINT INTELLIGENCE	XX52 NUCLEAR ENGINEERING
XX17 NAVAL TECH INTELLIGENCE	XX53 NUC PROPULSION PLANT OPS
XX18 INTELLIGENCE	XX54 NAVAL/MECHANICAL ENG
XX19 OPERATIONAL INTELL	XX55 ELECTRONIC ENGINEERING
XX20 GEN POLITICAL SCIENCE	XX56 UNDERWATER ACOUSTICS [D]
XX21 MID EAST AFRICA/SO. ASIA	XX60 WEAPONS ENG (GENERAL) [A]
XX22 FAR EAST/PACIFIC	XX61 WEAPONS SYSTEMS ENG [D]
XX23 WESTERN HEMISPHERE	XX62 CHEMISTRY
XX24 EUROPE	XX63 WEAP SYS SCI (PHYSICS) [D]
XX28 STRATEGIC PLANNING	XX66 COMBAT SYSTEM SCI & TEC [E]
XX29 SPEC. OPERATIONS/ LOW INT. CONFLICT [E]	XX67 NUC PHYS (WEAP & EFFECTS) [D]
XX30 MANAGEMENT (GEN) [A]	XX68 STRATEGIC WEAPONS (FBM)
XX31 FINANCIAL MANAGEMENT	XX69 STRATEGIC NAV (FBM)
XX32 MATERIAL LOG SUP MGMT	XX70 AERO SYS ENG (GEN) [A]
XX33 MNPWR, PERS TRNG ANAL	XX71 AERO ENGINEERING
XX35 TRNASPORTATION MGMT	XX72 AVIONICS
XX37 EDUCATION & TRNG MGMT	XX73 FLIGHT PERF/TEST PILOT
XX40 APPLIED LOGIC (GEN) [D]	XX75 SPACE SYSTEMS (GEN) [A]
XX41 APPLIED MATHEMATICS	XX76 SPACE SYSTEMS OPS
XX42 OPERATIONS ANALYSIS	XX77 SPACE SYSTEMS ENG
XX43 OPERATIONAL LOGISTICS	XX81 COMM ENG [D]
XX44 ANTISUBMARINE WARFARE	XX89 INFORMATION MANAGEMENT
XX45 COMMAND & CONTROL	XX91 COMPUTER TECHNOLOGY-SCI
XX46 ELECTRONIC WARFARE	0000 ANY DISCIPLINE
XX47 GEOPHYSICS [B]	
XX48 METEOROLOGY [B]	

NOTE: Medical Corps can utilize some of the non-staff corps subspecialty codes.

[A] - BILLET CODES ONLY

[B] - ASSIGNED TO 1800 DESIG

[D] - DELETED OR BEING DELETED

[E] - NEW CODES

SUBSPECIALTY CODE SUFFIX DEFINITIONS (5TH CHARACTER)

1. GRADUATE EDUCATION NON PROVEN SUFFIX

P, D, N CODES: Require theoretical knowledge that could not be acquired, under normal circumstances, as a result of progressive or selected assignments, attending short courses, or on-the-job training. This knowledge would be obtained in a formal education regimen leading to a degree; must meet educational skill requirements (ESRs).

2. GRADUATE EDUCATION PROVEN SUFFIX

C, M, Q, F, CODES: Apply only to URL officer billets in the grades of LCDR through CAPT. The billet must first satisfy the proper criteria for the subspecialty education, training and experience at the base (non-proven subspecialists) level. Proven subspecialty billets should not exceed 30% of the total subspecialty authorization within any one subspecialty field. This will be controlled by CNO (DCNO (Manpower, Personnel and Training)). In general, these billets require the more experienced senior (proven) officer of the subspecialty system. The billets should be thought of as follow-on billets for basic subspecialty system billets.

3. DOCTORATE - C, D SUFFIX

Required D - Requires comprehensive knowledge of specific theories, principles, processes and/or techniques certified through the acquisition of the doctorate for optimum performance of duty; also requires the conception, implementation, appraisal or management of exceptionally complex Navy and/or DOD programs.

Optional D - Requires the officer to routinely interface with personnel who possess doctorate level education, or requires the officer to exercise technical, educational or managerial supervision over personnel who possess doctorate level education.

Required and Optional C - All of the D-code criteria are applicable; additionally the billet requires a proven subspecialist at the doctorate level.

4. POST MASTERS - M, N, SUFFIX (post-master's, divided into Engineer and Other)

a. Engineer's Degree Level Criteria

Required N Code - Requires both engineering experience and comprehensive knowledge of scientific theories and engineering principles, processes and/or the techniques certified through the acquisition of the engineer's degree for optimum performance of duty; also requires the conception, appraisal, or management of exceptionally complex Navy and/or DOD programs. The billet requires the application of the most modern techniques in certain scientific fields, such as hydrodynamics, aerodynamics, fluid mechanics, thermodynamics, structural mechanics, nuclear physics, or electronics.

Optional N Code - Requires the application of engineering principles in design and integration of large and complex systems and components on a daily basis, or requires the officer to routinely interface with personnel engaged in rigorous application of the latest engineering knowledge. Also requires the officer to routinely interface with personnel who possess engineer's

degrees, or to exercise technical, educational, or managerial supervision over personnel who possess engineer's degrees.

Required and Optional M Code - All of the N-code criteria are applicable; additionally the billet requires a proven subspecialist at the engineer's degree level.

b. Other post-master's Degree Level Criteria

Required N Code - Requires significant educational experience and comprehensive knowledge of current theories and established principles, processes, and/or techniques certified through the acquisition of the post-master's degree for optimum performance of duty; also requires the conception, appraisal, or management of exceptionally complex Navy and/or DOD programs. These programs usually involve plans, policy, and/or decisions at the highest levels of military and/or government services. Additionally, the billet requires the application of the most modern techniques in certain fields, such as intelligence management, political-military science, strategic planning, applied logic, operations analysis, logistical analysis, operations systems, communications, computer technology, environmental science, or law.

Optional N Code - Requires the application of intricate principles in plans, policy or decision-making within large and complex DOD/Navy organizations on a daily basis, or requires the officer to routinely interface with personnel engaged in rigorous application of the latest educational knowledge within the subspecialty field. The officer must also routinely interface with personnel who possess post-master's degrees, or must exercise fiscal educational or managerial supervision over personnel involved in management or development of plans, policy, and/or decisions made at the highest levels of military and/or government service. The officer must also exercise fiscal, educational, or managerial supervision over personnel who possess post-master's degrees.

Required and Optional M Code - All of the N-code criteria are applicable; additionally the billet requires a proven subspecialist at the post-master's degree level.

5. MASTERS - P, Q SUFFIX

Required P Code - Requires the combination of both professional experience and extensive knowledge of theories, principles, processes and/or techniques certified through the acquisition of the master's degree for optimum performance of duty; also requires the conception, implementation, appraisal or management of complex Navy and/or DOD programs.

Optional P Code - Requires the officer to routinely interface with personnel who possess master's degrees, or requires the officer to exercise technical, educational or managerial supervision over personnel who possess master's degrees.

Required and Optional Q Code - All of the P-code criteria are applicable; additionally the billet requires a proven subspecialist at the master's degree level.

6. MASTER'S NOT FULLY MEETING NAVY REQUIREMENTS - F and G codes

F and G codes are used to denote officers who possess and billets which require master's degrees not fully meeting the specific master's degree criteria in a subspecialty. F and G codes also denote officers who possess, and billets which require, graduate level education and/or

advanced training at less than the master's degree level (i.e., submarine school, test pilot school, strategic weapons, and advanced navigation training).

Required G Code - Requires the combination of both professional experience and knowledge of theories, principles, processes and/or techniques certified through graduate education or advanced training for optimum performance of duty; also requires the successful completion of an advanced training program and/or graduate education courses in the subspecialty field (the graduate education is normally less than one year long); also requires either the application of tested principles to problem areas or the appraisal of work performed by others in Navy and/or DOD programs.

Optional G Code - Requires the officer to routinely interface or supervise personnel who have extensive experience, advanced training or graduate education in the subspecialty field or requires the officer to fully understand and supervise the operation and capabilities of unique, complex, and highly advanced equipment and/or systems.

Required and Optional F Code - All of the G-code criteria are applicable; additionally the billet requires a proven subspecialist at the G-coded level.

APPENDIX B

A LIST OF DATA ELEMENTS FOR THE FY 93 OMF

FIELD	DESCRIPTION
SSN	SOCIAL SECURITY NUMBER FY 93 OFFICER MASTER FILE
ETHNIC	OFFICER'S ETHNICITY
RACE	OFFICER'S RACE
SEX	OFFICER'S GENDER
PG_UTIL	DOD UTILIZATION OF P-CODED OFFICER'S
AQD	ADDITIONAL QUALIFICATION
SC	OFFICERS PRIMARY SUBSPECIALTY CODE
SSC2	OFFICER'S SECONDARY SUBSPECIALTY CODE
SSC3	OFFICER'S TERTIARY SUBSPECIALTY CODE
GRADLV1	SSC LEVEL (F,G,P,Q,M,N,C AND D) FOR PRIMARY SSC
GRADLV2	SSC LEVEL (F,G,P,Q,M,N,C AND D) FOR SECONDARY SSC
GRADLV3	SSC LEVEL (F,G,P,Q,M,N,C AND D) FOR THIRD SSC
APC	ACADEMIC PROFILE CODE
UNAME1	UNIVERSITY NAME
UNAME2	UNIVERSITY NAME
UNAME3	UNIVERSITY NAME
USPNR1	SPONSOR CODE FIRST UNIVERSITY
USPNR2	SPONSOR CODE SECOND UNIVERSITY
USPNR3	SPONSOR CODE THIRD UNIVERSITY
PROSTCD	PROMOTION STATUS CODE
PRST1	PROMOTION STATUS (REVERSE ORDER)
PRST2	PROMOTION STATUS

FIELD	DESCRIPTION
PRST3	PROMOTION STATUS
PRGRADE	PRESENT GRADE
DTRANK	DATE OF RANK
DESIG	DESIGNATOR (URL,RL,SELECTED STAFF)
YRGRP	YEAR GROUP
SEPLOSDT	SEPARATION LOSS DATE
CMDSCRN	COMMAND SCREEN
SSCUT1	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT2	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT3	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT4	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT5	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT6	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT7	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT8	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT9	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT10	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT11	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)
SSCUT12	SUBSPECIALTY UTILIZATION CODE PER TOUR (REVERSE ORDER)

APPENDIX C
SUBSPECIALITY UTILIZATION MATRIX

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SUBSPECIALTY UTILIZATION MATRIX

OFFICER SUSPECTALTY CODE		OFFICER SUSPECTALTY CODE	
10	11	10	11
10	11	10	11
12	13	12	13
14	15	14	15
16	17	16	17
18	19	18	19
20	21	20	21
22	23	22	23
24	25	24	25
26	27	26	27
28	29	28	29
30	31	30	31
32	33	32	33
34	35	34	35
36	37	36	37
38	39	38	39
40	41	40	41
42	43	42	43
44	45	44	45
46	47	46	47
48	49	48	49
50	51	50	51
52	53	52	53
54	55	54	55
56	57	56	57
58	59	58	59
60	61	60	61
62	63	62	63
64	65	64	65
66	67	66	67
68	69	68	69
70	71	70	71
72	73	72	73
74	75	74	75
76	77	76	77
78	79	78	79
80	81	80	81
82	83	82	83
84	85	84	85
86	87	86	87
88	89	88	89
90	91	90	91
92	93	92	93
94	95	94	95
96	97	96	97
98	99	98	99
100	101	100	101

APPENDIX D

1980 OMF COHORT DATA ELEMENT DEFINITION

	ELEMENT NAME	DATA ELEMENT DESCRIPTION
1	SSN	Service members social security number
2	DOB	Date of Birth
3	ETHNIC	Ethnic origin
4	RACE	Race
5	SEX	Sex
6	AWD	Highest award
7	ACBD	Active commission base date
8	ADBD	Active duty base date
9	DTCOM	Date commissioned
10	DGADR	Date of gain to active duty - initial
11	DGADT	Date of gain of active duty - current
12	MSRDT	Minimum service requirement date - initial
13	MSRBS	Minimum service requirement date - current
14	ACCES	Accession
15	SRVDT	Service date
16	SRCCD	Source code
17	SRCPGM	Source program code
18	PGUTIL	Postgraduate subspecialty DOD utilization
19	AQD1	Additional qualification code 1 - 20
20	SSC1	Primary subspecialty code
21	SSC2	Secondary subspecialty code
22	SSC3	Third subspecialty code
23	APC	Academic Profile Code
24	GREDT	Graduate Record Examination date

	ELEMENT NAME	DATA ELEMENT DESCRIPTION
25	CURADJ	Curriculum selected adjusted
26	CURREQ1	Primary curriculum selected
27	PREFDT	The date the Officer's preference card submitted
28	PFDCL	Indicates officer does not desire PG education
29	EDSRC	Education source
30	SCRPR	One position code for prgm officer has been selected to
31	SCRSEL	One position code indicating officer is primary or alternate
32	SELDT	Date when board selected officer
33	HSTCUR	Undergraduate or postgraduate curriculum officer selected
34	HSTPM	Education History - last two programs officer selected
35	HSTSEL	Indicates whether an officer was primary or alternate for prgm
36	HSTDT	FY officer last selected for program
37	PGDCL	Indicates officer selected for PG prgm declines selection
38	UNDLV	Educational level officer has achieved
39	UNAM1	University name
40	USPN1	One position field indicating the type of navy sponsored prgm
41	SVSCH	Service school
42	P_ENS	Promotion to Ensign
43	P_JG	Promotion to LTJG
44	P_LT	Promotion to LT
45	P_LCDR	Promotion to LCDR
46	P_CDR	Promotion to CDR
47	PRSTAT	Promotion status
48	PDATA	Promotion date
49	DESIG	Designator
50	PREC	Precedence information
51	DEPINF	Dependent information
52	SEPLS	Separation loss date

Note: Each year contains the same elements listed above.

APPENDIX E

SUBSPECIALTIES UTILIZATION TABLES

TABLE 12
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY SUBSPECIALTY CODE (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	6		23	26.1%	26.1%
PUBLIC AFFAIRS	10	29	4	36	80.6%	91.7%
ENGLISH	11	1		2	50.0%	50.0%
HISTORY	12	1		3	33.3%	33.3%
JOINT INTLL	16	14		52	26.9%	26.9%
NAVTECINTL	17	53	14	152	34.9%	44.1%
SOVIET INTELL	18	4		8	50.0%	50.0%
OPERATIONS INTELL	19			10	0.0%	0.0%
GENERAL AREA STUDIES	20	14	3	43	32.6%	39.5%
MIDE/AF/SA	21	9	1	26	34.6%	38.5%
FARE/PAC	22	10	2	40	25.0%	30.0%
WESTHEM	23	7		36	19.4%	19.4%
EUROPE	24	13	5	52	25.0%	34.6%
STRPLN	28	27	4	128	21.1%	24.2%
FINANCIAL MGT	31	288	54	500	57.6%	68.4%
MLOGSUPMGT	32	72	15	166	43.4%	52.4%
MPT ANALYSIS	33	106	10	225	47.1%	51.6%
TRANS MGT	35	5	2	31	16.1%	22.6%
MP MGT GEN	36	3	1	5	60.0%	80.0%
EDTRAMGT	37	50	3	112	44.6%	47.3%
ORG EFF	38	1		1	100.0%	100.0%
SYSACQMAT	39	10	3	15	66.7%	86.7%
APPMATH	41	9		27	33.3%	33.3%
OPANAL	42	166	45	320	51.9%	65.9%
QUANT ECON	43	4		20	20.0%	20.0%
ASW	44	107	17	220	48.6%	56.4%
C&C	45	36	7	91	39.6%	47.3%
EW	46	40	5	65	61.5%	69.2%
GEOPHYSICS	47	152	15	178	85.4%	93.8%
METRL	48	5	5	10	50.0%	100.0%
OPS OCEANOGRAPHY	49	48	20	115	41.7%	59.1%
NAVCONENGR	51	122	23	155	78.7%	93.5%
NUC ENGR	52	18	1	24	75.0%	79.2%
N/MECHENGR	54	287	32	406	70.7%	78.6%
ELEX ENGR	55	163	25	237	68.8%	79.3%
UW ACOUST	56	1		1	100.0%	100.0%
WEPSYSENGR	61	4		10	40.0%	40.0%
CHEMISTRY	62	10		14	71.4%	71.4%
WEPSYSSCI	63	2		6	33.3%	33.3%
COMBAT SYS SCI& TEC	66	228	29	373	61.1%	68.9%
NUCDIR/EWE	67	3		3	100.0%	100.0%
AERO ENGR	71	135	20	238	56.7%	65.1%
AVIONICS	72	55	10	92	59.8%	70.7%
SPACSYSOPS	76	49	1	84	58.3%	59.5%
SPACSYSENGR	77	46		86	53.5%	53.5%
COMMENGR	81	45	5	63	71.4%	79.4%
IM	89	293	50	553	53.0%	62.0%
CMPECHSCI	91	100	21	179	55.9%	67.6%
TOTAL		2845	452	5213	54.6%	63.2%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 13
FY 93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS BY
SUBSPECIALTY CODE (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	6		8	75.0%	75.0%
PUBLIC AFFAIRS	10	29	4	34	85.3%	97.1%
ENGLISH	11	1		1	100.0%	100.0%
HISTORY	12	1		1	100.0%	100.0%
JOINT INTLL	16	14	1	24	58.3%	62.5%
NAVTECINTL	17	53	14	106	50.0%	63.2%
SOVIET INTELL	18	4		4	100.0%	100.0%
GENERAL AREA STUDIES	20	14	3	26	53.8%	65.4%
MIDE/AF/SA	21	9	1	16	56.3%	62.5%
FARE/PAC	22	10	2	16	62.5%	75.0%
WESTHEM	23	7		11	63.6%	63.6%
EUROPE	24	13	5	24	54.2%	75.0%
STRPLN	28	27	4	46	58.7%	67.4%
FINANCIAL MGT	31	288	54	375	76.8%	91.2%
MLOGSUPMGT	32	72	15	99	72.7%	87.9%
MPT ANALYSIS	33	106	10	143	74.1%	81.1%
TRANS MGT	35	5	2	11	45.5%	63.6%
MP MGT GEN	36	3	1	5	60.0%	80.0%
EDTRAMGT	37	50	3	68	73.5%	77.9%
ORG EFF	38	1		1	100.0%	100.0%
SYSACQMAT	39	10	3	14	71.4%	92.9%
APPMATH	41	9		12	75.0%	75.0%
OPANAL	42	166	45	232	71.6%	90.9%
QUANT ECON	43	4		4	100.0%	100.0%
ASW	44	107	17	155	69.0%	80.0%
C&C	45	36	7	49	73.5%	87.8%
EW	46	40	5	46	87.0%	97.8%
GEOPHYSICS	47	152	15	167	91.0%	100.0%
METRL	48	5	5	10	50.0%	100.0%
OPS OCEANOGRAPHY	49	48	20	84	57.1%	81.0%
NAVCONENGR	51	122	23	147	83.0%	98.6%
NUC ENGR	52	18	1	19	94.7%	100.0%
N/MECHENGR	54	287	32	325	88.3%	98.2%
ELEX ENGR	55	163	25	196	83.2%	95.9%
UW ACOUST	56	1		1	100.0%	100.0%
WEPSYSENGR	61	4		5	80.0%	80.0%
CHEMISTRY	62	10		14	71.4%	71.4%
WEPSYSSCI	63	2		2	100.0%	100.0%
COMBAT SYS SCI& TEC	66	228	29	274	83.2%	93.8%
NUCDIR/EWE	67	3		3	100.0%	100.0%
AERO ENGR	71	135	20	172	78.5%	90.1%
AVIONICS	72	55	10	72	76.4%	90.3%
SPACSYSOPS	76	49	1	56	87.5%	89.3%
SPACSYSENGR	77	46		49	93.9%	93.9%
COMMENGR	81	45	5	51	88.2%	98.0%
IM	89	333	50	386	86.3%	99.2%
CMPECHSCI	91	100	21	131	76.3%	92.4%
TOTAL		2885	453	3687	78.2%	90.5%

Note: The definition of the utilization rate excludes the "must use next" officers in inventory

TABLE 14
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY MALE (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	6		17	35.29%	35.29%
PUBLIC AFFAIRS	10	27	4	34	79.41%	91.18%
ENGLISH	11	1		2	50.00%	50.00%
HISTORY	12	1		2	50.00%	50.00%
JOINT INTLL	16	11	1	39	28.21%	30.77%
NAVTECINTL	17	48	13	133	36.09%	45.86%
SOVIET INTELL	18	4		8	50.00%	50.00%
OPERATIONS INTELL	19			7	0.00%	0.00%
GENERAL AREA STUDIES	20	14	3	41	34.15%	41.46%
MIDE/AF/SA	21	8	1	22	36.36%	40.91%
FARE/PAC	22	9	2	34	26.47%	32.35%
WESTHEM	23	6		28	21.43%	21.43%
EUROPE	24	11	4	44	25.00%	34.09%
STRPLN	28	24	4	116	20.69%	24.14%
FINANCIAL MGT	31	254	54	450	56.44%	68.44%
MLOGSUPMGT	32	68	15	158	43.04%	52.53%
MPT ANALYSIS	33	63	9	161	39.13%	44.72%
TRANS MGT	35	1		6	16.67%	16.67%
MP MGT GEN	36	2	1	4	50.00%	75.00%
EDTRAMGT	37	14	2	43	32.56%	37.21%
SYSACQMAT	39	10	3	15	66.67%	86.67%
APPMATH	41	7		22	31.82%	31.82%
OPANAL	42	152	42	293	51.88%	66.21%
QUANT ECON	43	3		17	17.65%	17.65%
ASW	44	98	17	208	47.12%	55.29%
C&C	45	27	4	72	37.50%	43.06%
EW	46	40	5	64	62.50%	70.31%
GEOPHYSICS	47	136	14	159	85.53%	94.34%
METRL	48	5	5	10	50.00%	100.00%
OPS OCEANOGRAPHY	49	44	18	105	41.90%	59.05%
NAVCONENGR	51	114	23	147	77.55%	93.20%
NUC ENGR	52	18	1	24	75.00%	79.17%
N/MECHENGR	54	277	30	392	70.66%	78.32%
ELEX ENGR	55	153	25	224	68.30%	79.46%
WEPSYSENGR	61	4		10	40.00%	40.00%
CHEMISTRY	62	9		13	69.23%	69.23%
WEPSYSSCI	63	2		6	33.33%	33.33%
COMBAT SYS SCI & TEC	66	221	27	361	61.22%	68.70%
NUCDIR/EWE	67	2		2	100.00%	100.00%
AERO ENGR	71	141	20	232	60.78%	69.40%
AVIONICS	72	55	10	92	59.78%	70.65%
SPACSYSOPS	76	39	1	69	56.52%	57.97%
SPACSYSENGR	77	43		80	53.75%	53.75%
COMMENGR	81	41	4	58	70.69%	77.59%
IM	89	213	43	436	48.85%	58.72%
CMPECHSCI	91	81	18	149	54.36%	66.44%
TOTAL		2501	423	4592	54.46%	63.68%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 15
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY MALE (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	6		8	75.00%	75.00%
PUBLIC AFFAIRS	10	27	4	32	84.38%	96.88%
ENGLISH	11	1		1	100.00%	100.00%
HISTORY	12	1		1	100.00%	100.00%
JOINT INTLL	16	11	1	19	57.89%	63.16%
NAVTECINTL	17	48	13	95	50.53%	64.21%
SOVIET INTELL	18	4		4	100.00%	100.00%
GENERAL AREA STUDIES	20	12	3	24	50.00%	62.50%
MIDE/AF/SA	21	8	1	15	53.33%	60.00%
FARE/PAC	22	9	2	14	64.29%	78.57%
WESTHEM	23	6		8	75.00%	75.00%
EUROPE	24	11	4	20	55.00%	75.00%
STRPLN	28	24	4	41	58.54%	68.29%
FINANCIAL MGT	31	254	54	338	75.15%	91.12%
MLOGSUPMGT	32	68	15	95	71.58%	87.37%
MPT ANALYSIS	33	63	9	97	64.95%	74.23%
TRANS MGT	35	1		1	100.00%	100.00%
MP MGT GEN	36	2	1	4	50.00%	75.00%
EDTRAMGT	37	14	2	21	66.67%	76.19%
SYSACQMAT	39	10	3	14	71.43%	92.86%
APPMATH	41	7		10	70.00%	70.00%
OPANAL	42	152	42	213	71.36%	91.08%
QUANT ECON	43	3		3	100.00%	100.00%
ASW	44	98	17	146	67.12%	78.77%
C&C	45	27	4	37	72.97%	83.78%
EW	46	40	5	46	86.96%	97.83%
GEOPHYSICS	47	136	14	150	90.67%	100.00%
METRL	48	5	5	10	50.00%	100.00%
OPS OCEANOGRAPHY	49	44	18	77	57.14%	80.52%
NAVCONENGR	51	114	23	139	82.01%	98.56%
NUC ENGR	52	18	1	19	94.74%	100.00%
N/MECHENGR	54	277	30	313	88.50%	98.08%
ELEX ENGR	55	153	25	186	82.26%	95.70%
WEPSYSENGR	61	4		5	80.00%	80.00%
CHEMISTRY	62	9		13	69.23%	69.23%
WEPSYSSCI	63	2		2	100.00%	100.00%
COMBAT SYS SCI & TEC	66	221	27	265	83.40%	93.58%
NUCDIR/EWE	67	2		2	100.00%	100.00%
AERO ENGR	71	131	20	168	77.98%	89.88%
AVIONICS	72	55	10	72	76.39%	90.28%
SPACSYSOPS	76	39	1	45	86.67%	88.89%
SPACSYSENGR	77	43		46	93.48%	93.48%
COMMENGR	81	41	4	46	89.13%	97.83%
IM	89	213	43	292	72.95%	87.67%
CMPECHSCI	91	81	18	107	75.70%	92.52%
TOTAL		2489	423	3256	76.44%	89.43%

Note: The definition of the utilization rate excludes the "must use next" officers in inventory

TABLE 16
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY FEMALE (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00			6	0.00%	0.00%
PUBLIC AFFAIRS	10	2		2	100.00%	100.00%
HISTORY	12			1	0.00%	0.00%
JOINT INTLL	16	3		13	23.08%	23.08%
NAVTECINTL	17	5	1	19	26.32%	31.58%
OPERATIONS INTELL	19			3	0.00%	0.00%
GENERAL AREA STUDIES	20	2		2	100.00%	100.00%
MIDE/AF/SA	21	1		4	25.00%	25.00%
FARE/PAC	22	1		6	16.67%	16.67%
WESTHEM	23	1		8	12.50%	12.50%
EUROPE	24	2	1	8	25.00%	37.50%
STRPLN	28	3		12	25.00%	25.00%
FINANCIAL MGT	31	34		50	68.00%	68.00%
MLOGSUPMGT	32	4		8	50.00%	50.00%
MPT ANALYSIS	33	43	1	64	67.19%	68.75%
TRANS MGT	35	4	2	25	16.00%	24.00%
MP MGT GEN	36	1		1	100.00%	100.00%
EDTRAMGT	37	36	1	69	52.17%	53.62%
ORG EFF	38	1		1	100.00%	100.00%
APPMATH	41	2		5	40.00%	40.00%
OPANAL	42	14	3	27	51.85%	62.96%
QUANT ECON	43	1		3	33.33%	33.33%
ASW	44	9		12	75.00%	75.00%
C&C	45	9	3	19	47.37%	63.16%
EW	46			1	0.00%	0.00%
GEOPHYSICS	47	16	1	19	84.21%	89.47%
OPS OCEANOGRAPHY	49	4	2	10	40.00%	60.00%
NAVCONENGR	51	8		8	100.00%	100.00%
N/MECHENGR	54	10	2	14	71.43%	85.71%
ELEX ENGR	55	10		13	76.92%	76.92%
UW ACOUST	56	1		1	100.00%	100.00%
CHEMISTRY	62	1		1	100.00%	100.00%
COMBAT SYS SCI & TEC	66	7	2	12	58.33%	75.00%
NUCDIR/EWE	67	1		1	100.00%	100.00%
AERO ENGR	71	4		6	66.67%	66.67%
SPACSYSOPS	76	10		15	66.67%	66.67%
SPACSYSENGR	77	3		6	50.00%	50.00%
COMMENGR	81	4	1	5	80.00%	100.00%
IM	89	80	7	117	68.38%	74.36%
CMPECHSCI	91	19	3	30	63.33%	73.33%
TOTAL		356	30	621	57.33%	62.16%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 17
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY FEMALE (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
PUBLIC AFFAIRS	10	2		2	100.00%	100.00%
JOINT INTLL	16	3		5	60.00%	60.00%
NAVTECINTL	17	5	1	11	45.45%	54.55%
GENERAL AREA STUDIES	20	2		2	100.00%	100.00%
MIDE/AF/SA	21	1		1	100.00%	100.00%
FARE/PAC	22	1		2	50.00%	50.00%
WESTHEM	23	1		3	33.33%	33.33%
EUROPE	24	2	1	4	50.00%	75.00%
STRPLN	28	2		5	40.00%	40.00%
FINANCIAL MGT	31	34		37	91.89%	91.89%
MLOGSUPMGT	32	4		4	100.00%	100.00%
MPT ANALYSIS	33	43	1	46	93.48%	95.65%
TRANS MGT	35	4	1	46	8.70%	10.87%
MP MGT GEN	36	1		1	100.00%	100.00%
EDTRAMGT	37	36	1	47	76.60%	78.72%
ORG EFF	38	1		1	100.00%	100.00%
APPMATH	41	2		2	100.00%	100.00%
OPANAL	42	14	3	19	73.68%	89.47%
QUANT ECON	43	1		1	100.00%	100.00%
ASW	44	9		9	100.00%	100.00%
C&C	45	9	3	12	75.00%	100.00%
GEOPHYSICS	47	16	1	17	94.12%	100.00%
OPS OCEANOGRAPHY	49	4	2	7	57.14%	85.71%
NAVCONENGR	51	8		8	100.00%	100.00%
N/MECHENGR	54	10	2	12	83.33%	100.00%
ELEX ENGR	55	10		10	100.00%	100.00%
UW ACOUST	56	1		1	100.00%	100.00%
CHEMISTRY	62	1		1	100.00%	100.00%
COMBAT SYS SCI & TEC	66	7		9	77.78%	77.78%
NUCDIR/EWE	67	1		1	100.00%	100.00%
AERO ENGR	71	4		4	100.00%	100.00%
SPACSYSOPS	76	10		11	90.91%	90.91%
SPACSYSENGR	77	3		3	100.00%	100.00%
COMMENGR	81	4	1	5	80.00%	100.00%
IM	89	80	7	94	85.11%	92.55%
CMPECHSCI	91	19	3	24	79.17%	91.67%
TOTAL		355	27	467	76.02%	81.80%

Note: The definition of the utilization rate excludes the "must use next" officers in inventory

TABLE 18
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY URL (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	1		487	0.21%	0.21%
PUBLIC AFFAIRS	10		1	2	0.00%	50.00%
ENGLISH	11	1		9	11.11%	11.11%
HISTORY	12	1		18	5.56%	5.56%
JOINT INTLL	16	14	1	40	35.00%	37.50%
NAVTECINTL	17	33	7	106	31.13%	37.74%
OPERATIONS INTELL	19			5	0.00%	0.00%
GENERAL AREA STUDIES	20	13	3	84	15.48%	19.05%
MIDE/AF/SA	21	10		27	37.04%	37.04%
FARE/PAC	22	6	1	37	16.22%	18.92%
WESTHEM	23	7		36	19.44%	19.44%
EUROPE	24	10	4	67	14.93%	20.90%
STRPLN	28	31	4	167	18.56%	20.96%
FINANCIAL MGT	31	119	17	275	43.27%	49.45%
MLOGSUPMGT	32	5	3	33	15.15%	24.24%
MPT ANALYSIS	33	94	9	219	42.92%	47.03%
TRANS MGT	35	7	2	35	20.00%	25.71%
MP MGT GEN	36	2	1	7	28.57%	42.86%
EDTRAMGT	37	40	5	141	28.37%	31.91%
ORG EFF	38	1		1	100.00%	100.00%
SYSACQMAT	39	5	3	9	55.56%	88.89%
APPMATH	41	5		28	17.86%	17.86%
OPANAL	42	145	33	283	51.24%	62.90%
QUANT ECON	43	4		23	17.39%	17.39%
ASW	44	100	12	201	49.75%	55.72%
C&C	45	35	7	91	38.46%	46.15%
EW	46	25	1	42	59.52%	61.90%
METRL	48		2	2	0.00%	100.00%
OPS OCEANOGRAPHY	49	28	9	86	32.56%	43.02%
NAVCONENGR	51	5	2	20	25.00%	35.00%
NUC ENGR	52	5		101	4.95%	4.95%
N/MECHENGR	54	49	1	130	37.69%	38.46%
ELEX ENGR	55	25	8	84	29.76%	39.29%
UW ACOUST	56			1	0.00%	0.00%
WEPSYSENGR	61	2		5	40.00%	40.00%
CHEMISTRY	62	4		15	26.67%	26.67%
WEPSYSSCI	63	2		6	33.33%	33.33%
COMBAT SYS SCI & TEC	66	102	15	232	43.97%	50.43%
NUCDIR/EWE	67	2		2	100.00%	100.00%
AERO ENGR	71	67	5	158	42.41%	45.57%
AVIONICS	72	77	1	44	175.00%	177.27%
SPACSYSOPS	76	36	1	60	60.00%	61.67%
SPACSYSENGR	77	13		56	23.21%	23.21%
COMMENGR	81	20	3	35	57.14%	65.71%
IM	89	215	34	435	49.43%	57.24%
CMPECHSCI	91	54	13	128	42.19%	52.34%
TOTAL		1420	208	3586	39.60%	45.40%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 19
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY URL (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	1		476	0.21%	0.21%
PUBLIC AFFAIRS	10		1	2	0.00%	50.00%
ENGLISH	11	1		9	11.11%	11.11%
HISTORY	12	1		17	5.88%	5.88%
JOINT INTLL	16	14	1	21	66.67%	71.43%
NAVTECINTL	17	33	7	68	48.53%	58.82%
OPERATIONS INTELL	19			1	0.00%	0.00%
GENERAL AREA STUDIES	20	13	3	67	19.40%	23.88%
MIDE/AF/SA	21	10		17	58.82%	58.82%
FARE/PAC	22	6	1	13	46.15%	53.85%
WESTHEM	23	7		15	46.67%	46.67%
EUROPE	24	10	4	42	23.81%	33.33%
STRPLN	28	31	4	87	35.63%	40.23%
FINANCIAL MGT	31	119	17	175	68.00%	77.71%
MLOGSUPMGT	32	5	3	19	26.32%	42.11%
MPT ANALYSIS	33	94	9	140	67.14%	73.57%
TRANS MGT	35	7	2	15	46.67%	60.00%
MP MGT GEN	36	2	1	7	28.57%	42.86%
EDTRAMGT	37	40	5	101	39.60%	44.55%
ORG EFF	38	1		1	100.00%	100.00%
SYSACQMAT	39	5	3	8	62.50%	100.00%
APPMATH	41	5		13	38.46%	38.46%
OPANAL	42	145	33	197	73.60%	90.36%
QUANT ECON	43	4		7	57.14%	57.14%
ASW	44	100	12	136	73.53%	82.35%
C&C	45	35	7	51	68.63%	82.35%
EW	46	25	1	24	104.17%	108.33%
METRL	48		2	2	0.00%	100.00%
OPS OCEANOGRAPHY	49	28	9	58	48.28%	63.79%
NAVCONENGR	51	5	2	15	33.33%	46.67%
NUC ENGR	52	5		96	5.21%	5.21%
NUCPROPLTOP	53	66	1			
N/MECHENGR	54	49	1	68	72.06%	73.53%
ELEX ENGR	55	25	8	49	51.02%	67.35%
UW ACOUST	56			1	0.00%	0.00%
WEPSYSENGR	61	2		3	66.67%	66.67%
CHEMISTRY	62	4		15	26.67%	26.67%
WEPSYSSCI	63	2		2	100.00%	100.00%
COMBAT SYS SCI & TEC	66	102	15	141	0.00%	10.64%
NUCDIR/EWE	67	2		2	100.00%	100.00%
AERO ENGR	71	67	5	101	66.34%	71.29%
AVIONICS	72	77	1	29	265.52%	268.97%
SPACSYSOPS	76	36	1	37	97.30%	100.00%
SPACSYSENGR	77	13		22	59.09%	59.09%
COMMENGR	81	20	3	23	86.96%	100.00%
IM	89	215	34	292	73.63%	85.27%
CMPECHSCI	91	54	13	90	60.00%	74.44%
TOTAL		1383	209	2299	60.16%	69.25%

Note: The definition of the utilization rate excludes the "must use next" officers in inventory

TABLE 20
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY RL (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	1				
PUBLIC AFFAIRS	10	32	3	48	66.67%	72.92%
ENGLISH	11			3	0.00%	0.00%
HISTORY	12			5	0.00%	0.00%
JOINT INTLL	16	12	1	25	48.00%	52.00%
NAVTECINTL	17	24	8	46	52.17%	69.57%
SOVIET INTELL	18	5		8	62.50%	62.50%
OPERATIONS INTELL	19			7	0.00%	0.00%
GENERAL AREA STUDIES	20	2	2	13	15.38%	30.77%
MIDE/AF/SA	21	3	1	3	100.00%	133.33%
FARE/PAC	22	5	1	7	71.43%	85.71%
WESTHEM	23			4	0.00%	0.00%
EUROPE	24	4	1	13	30.77%	38.46%
STRPLN	28			10	0.00%	0.00%
FINANCIAL MGT	31	5	1	17	29.41%	35.29%
MLOGSUPMGT	32	34	8	85	40.00%	49.41%
MPT ANALYSIS	33			2	0.00%	0.00%
MP MGT GEN	36			4	0.00%	0.00%
EDTRAMGT	37			2	0.00%	0.00%
SYSACQMAT	39	2		2	100.00%	100.00%
APPMATH	41	4		8	50.00%	50.00%
OPANAL	42	18	5	25	72.00%	92.00%
ASW	44	20	5	25	80.00%	100.00%
C&C	45	4		8	50.00%	50.00%
EW	46	18	4	24	75.00%	91.67%
GEOPHYSICS	47	162	15	193	83.94%	91.71%
METRL	48	5	3	10	50.00%	80.00%
OPS OCEANOGRAPHY	49	24	11	38	63.16%	92.11%
NAVCONENGR	51	120	21	148	81.08%	95.27%
NUC ENGR	52	14	1	38	36.84%	39.47%
N/MECHENGR	54	258		310	83.23%	83.23%
ELEX ENGR	55	149	18	175	85.14%	95.43%
UW ACOUST	56	1		1	100.00%	100.00%
WEPSYSENGR	61	3		6	50.00%	50.00%
CHEMISTRY	62	6		9	66.67%	66.67%
COMBAT SYS SCI & TEC	66	140	16	171	81.87%	91.23%
NUCDIR/EWE	67	1		1	100.00%	100.00%
AERO ENGR	71	76	15	104	73.08%	87.50%
AVIONICS	72	36	9	51	70.59%	88.24%
SPACSYSGEN	75			26	0.00%	0.00%
SPACSYSOPS	76	18		43	41.86%	41.86%
SPACSYSENGR	77	36				ERR
COMMENGR	81	28		30	93.33%	93.33%
IM	89	48	13	74	64.86%	82.43%
CMPECHSCI	91	50	7	68	73.53%	83.82%
TOTAL		1367	169	1890	72.33%	81.27%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 21
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY RL (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00			122	0.00%	0.00%
PUBLIC AFFAIRS	10	32	3			
ENGLISH	11					
HISTORY	12					
JOINT INTLL	16	12	1			
NAVTECINTL	17	24	8			
SOVIET INTELL	18	5				
OPERATIONS INTELL	19					
GENERAL AREA STUDIES	20	2				
MIDE/AF/SA	21	3	1			
FARE/PAC	22	5	1			
WESTHEM	23					
EUROPE	24	4	1	10	40.00%	50.00%
STRPLN	28			8	0.00%	0.00%
FINANCIAL MGT	31	5	1	12	41.67%	50.00%
MLOGSUPMGT	32	34	8	57	59.65%	73.68%
MP MGT GEN	36			4	0.00%	0.00%
EDTRAMGT	37			2	0.00%	0.00%
SYSACQMAT	39			2	0.00%	0.00%
APPMATH	41			8	0.00%	0.00%
OPANAL	42			24	0.00%	0.00%
ASW	44			25	0.00%	0.00%
C&C	45			6	0.00%	0.00%
EW	46			23	0.00%	0.00%
GEOPHYSICS	47	162	15	182	89.01%	97.25%
METRL	48	5	3	10	50.00%	80.00%
OPS OCEANOGRAPHY	49	24	11	35	68.57%	100.00%
NAVCONENGR	51	120	21	146	82.19%	96.58%
NUC ENGR	52	14	1	58	24.14%	25.86%
NUCPROPLTOP	53	21				
N/MECHENGR	54	258	31	292	88.36%	98.97%
ELEX ENGR	55	149	18	169	88.17%	98.82%
UW ACOUST	56	1		1	100.00%	100.00%
WEPSYSENGR	61	3		3	100.00%	100.00%
CHEMISTRY	62	6		9	66.67%	66.67%
COMBAT SYS SCI & TEC	66	140	18	163	85.89%	96.93%
NUCDIR/EWE	67	1		1	100.00%	100.00%
AERO ENGR	71	76	15	97	78.35%	93.81%
AVIONICS	72	36	9	46	78.26%	97.83%
FLTPERF/TP	73	7				
SPACSYSOPS	76	18		21	85.71%	85.71%
SPACSYSENGR	77	36		40	90.00%	90.00%
COMMENGR	81	28	2	30	93.33%	100.00%
IM	89	50	13	63	79.37%	100.00%
CMPECHSCI	91		7	58	0.00%	12.07%
TOTAL		1281	188	1605	79.81%	91.53%

Note: The definition of the utilization rate excludes the "must use next" officer in inventory

TABLE 22
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY STAFF CORPS (INCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	4		78	5.13%	5.13%
PUBLIC AFFAIRS	10					
ENGLISH	11			1	0.00%	0.00%
HISTORY	12			3	0.00%	0.00%
JOINT INTLL	16					
NAVTECINTL	17					
SOVIET INTELL	18					
OPERATIONS INTELL	19					
MIDE/AF/SA	21					
FARE/PAC	22					
WESTHEM	23					
EUROPE	24					
STRPLN	28	1				
GENERAL	30			8	0.00%	0.00%
FINANCIAL MGT	31	188	39	254	74.02%	89.37%
MLOGSUPMGT	32	39		78	50.00%	50.00%
MPT ANALYSIS	33	20		23	86.96%	86.96%
TRANS MGT	35			2	0.00%	0.00%
MP MGT GEN	36	2		2	100.00%	100.00%
EDTRAMGT	37	20	1	35	57.14%	60.00%
ORG EFF	38					
SYSACQMAT	39	4		4	100.00%	100.00%
APPMATH	41			2	0.00%	0.00%
OPANAL	42	18	8	24	75.00%	108.33%
QUANT ECON	43					
ASW	44					
C&C	45					
EW	46					
GEOPHYSICS	47					
METRL	48					
OPS OCEANOGRAPHY	49					
NAVCONENGR	51					
NUC ENGR	52			1	0.00%	0.00%
NUCPROPLTOP	53	1				
N/MECHENGR	54			2	0.00%	0.00%
ELEX ENGR	55	1		1	100.00%	100.00%
UW ACOUST	56					
WEPSYSENGR	61					
CHEMISTRY	62					
WEPSYSSCI	63					
NUCDIR/EWE	67					
STRATWEP	68					
STRATNAVIG	69					
AERO ENGR	71			1	0.00%	0.00%
AVIONICS	72					
FLTPERF/TP	73					
SPACSYSOPS	76					
SPACSYSENGR	77					
COMMENGR	81					
IM	89	60	3	77	77.92%	81.82%
CMPECHSCI	91	1	1	2	50.00%	100.00%
TOTAL		355	52	520	68.27%	78.27%

Note: The definition of the utilization rate includes the "must use next" officers in inventory

TABLE 23
FY93 OMF UTILIZATION RATES FOR FFGE SUBSPECIALISTS
BY STAFF CORPS (EXCLUDING "MUST USE NEXT")

SUBSPECIALTY TITLE	SSC	DOD COMP	OVERALL COMP	FFGE	% DOD COMP	% OVERALL COMP
GENERAL	00	4		75	5.33%	5.33%
PUBLIC AFFAIRS	10					
ENGLISH	11			1	0.00%	0.00%
HISTORY	12			5	0.00%	0.00%
JOINT INTLL	16					
NAVTECINTL	17					
SOVIET INTELL	18					
OPERATIONS INTELL	19					
GENERAL AREA STUDIES	20					
MIDE/AF/SA	21					
FARE/PAC	22					
WESTHEM	23					
EUROPE	24					
STRPLN	28	1				
FINANCIAL MGT	31	188	37	234	80.34%	96.15%
MLOGSUPMGT	32	39	4	53	73.58%	81.13%
MPT ANALYSIS	33	20		21	95.24%	95.24%
TRANS MGT	35					
MP MGT GEN	36	2		3	66.67%	66.67%
EDTRAMGT	37	20	1	1		
ORG EFF	38					
SYSACQMAT	39	4		4	100.00%	100.00%
APPMATH	41			2	0.00%	0.00%
OPANAL	42	18	8	23	78.26%	113.04%
QUANT ECON	43					
ASW	44					
C&C	45					
EW	46					
GEOPHYSICS	47					
METRL	48					
OPS OCEANOGRAPHY	49					
NAVCONENGR	51					
NUC ENGR	52			1	0.00%	0.00%
NUCPROPLTOP	53	1				
N/MECHENGR	54			1	0.00%	0.00%
ELEX ENGR	55	1		1	100.00%	100.00%
UW ACOUST	56					
WEPSYSENGR	61					
CHEMISTRY	62					
WEPSYSSCI	63					
COMBAT SYS SCI & TEC	66					
NUCDIR/EWE	67					
STRATWEP	68					
STRATNAVIG	69					
AERO ENGR	71					
AVIONICS	72					
FLTPERF/TP	73					
SPACSYSGEN	75					
SPACSYSOPS	76					
SPACSYSENGR	77					
COMMENGR	81					
IM	89	60	3	64	93.75%	98.44%
CMPECHSCI	91	1	1	1	100.00%	200.00%
TOTAL		355	54	415	85.54%	98.55%

Note: The definition of the utilization rate excludes the "must use next" officer in inventory

APPENDIX F
COHORT TABLES

TABLE 24. 1980 OFFICER MASTER FILE COHORT

YEAR	ENS	LTJG	LT	LCDR	TOTAL
81	4,597	14			4,612
82	567	3,906			4,473
84	44	1,179	2,915		4,183
85	5	34	3,412		3,511
86		7	3,134		3,142
87			2,729	1	2,731
88			2,499	4	2,504
89			2,209	119	2,329
90			829	1,407	2,237
91			324	1,721	2,045
92			98	1,764	1,862
93			11	1,725	1,736

**TABLE 25. 1980 OFFICER MASTER FILE COHORT
DISTRIBUTION BY GENDER**

YEAR	MALE	FEMALE	TOTAL
81	4,015	597	4,612
82	3,913	560	4,473
84	3,632	551	4,183
85	3,067	444	3,511
86	2,739	403	3,142
87	2,383	348	2,731
88	2,185	319	2,504
89	2,024	305	2,329
90	1,934	303	2,237
91	1,764	281	2,045
92	1,619	243	1,862
93	1,506	230	1,736

**TABLE 26. 1980 OFFICER COHORT FREQUENCY
OF SUBSPECIALTY LEVEL**

	C	D	F	G	M	N	P	Q	R	S	T
81				19			38			1	
82				478			40			9	2
84				474			73			35	87
85				386			101			75	19 2
86				309		1	127			104	24 9
87				273		4	213			130	23 3
88				263		10	329			157	13 5
89		1	2	273		14	446		1	165	83
90			4	266		16	455	35	18	169	90
91		2	51	210		19	466	52	71	173	77
92		2	51	216		20	487	69	111	150	46
93	1	1	51	204	1	19	449	91	115	138	25

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